

This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

GREAT RIVERS




6000234540



THE AMAZON AND ITS WONDERS.



FISHING FOR ELECTRIC EELS.

Page 160

Great Rivers of the World.

THE AMAZON

AND ITS WONDERS.

WITH ILLUSTRATIONS OF ANIMAL AND VEGETABLE LIFE IN THE AMAZONIAN FOREST.

BY THE AUTHOR OF

The Arctic World," "The Mediterranean Illustrated,"
&c. &c.

WITH TWENTY-EIGHT ILLUSTRATIONS.



LONDON: THOMAS NELSON AND SONS.
EDINBURGH AND NEW YORK.
1879.

203. g. 351.

Contents.

I. VOYAGES OF EXPLORATION, ... 9

II. LIEUTENANT HERNDON'S VOYAGE DOWN THE AMAZONS, ... 39

III. FROM MANAOS, EASTWARD, ... 121

IV. IN THE VIRGIN FOREST, ... 163

THE AMAZON AND ITS WONDERS.

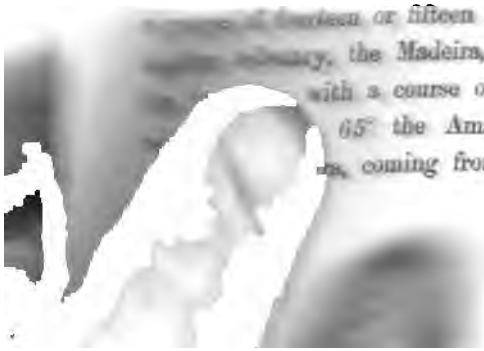
CHAPTER I.

VOYAGES OF EXPLORATION.

THE River Amazon, or Amazons, the Queen of the South American Rivers, and one of the great Rivers of the World, has its sources in the Andes, on the west coast of South America; and crosses that immense continent throughout its entire breadth from east to west, falling into the North Atlantic Ocean in about long. 50° W. If we allow for its numerous windings, we may estimate its length at fully four thousand miles. It is ninety-six miles wide at its mouth, or delta; and navigable for two thousand two hundred miles from the sea—that is, for fully nine times the whole extent of the Thames. So immense is the volume of water which it pours into the sea, that the current preserves

character for a
the land. The
can tell by their colour and
he is crossing are those of the

its sources as lying up among
all geographers are
the question of which
connect the Amazons with
which rises in
W.;
W.
de
and the Tavajos, after
unite in one broad
the name of the Solimoens, the
ward to its confluence with the
which it is called the Amazons.
in itself a stately stream, with
fifteen hundred miles; and
the Madeira, is also a river of
with a course of eighteen hundred
the Amazons receives the
coming from the north; and





SCENE ON THE APURIMAC.

its freshness and distinct riverine character for a distance of three hundred miles from the land. The voyager far out at sea can tell by their colour and taste that the waters he is crossing are those of the mighty American river.

We have spoken of its sources as lying up among the Andes. As to this fact all geographers are agreed; but they differ on the question of which *are* those sources. Some connect the Amazons with the Tungaragua, or Upper Marañon, which rises in Lake Lauricocha, lat. 10° 30′ S., long. 76° 25′ W.; others, with the Apurimac, one of the head streams of the Ucayale, lat. 15° 38′ S., and long. 75° W. Near the Spanish-Indian town of San Joaquim de Ouraguas, the Tungaragua and the Ucayale, after receiving several tributaries, unite in one broad channel; and under the name of the Solimoens, the great river flows onward to its confluence with the Rio Negro, after which it is called the Amazons. The Rio Negro is in itself a stately stream, with a course of fourteen or fifteen hundred miles; and another tributary, the Madeira, is also a river of the first class, with a course of eighteen hundred miles. In long. 65° the Amazons receives the Coqueta, or Japura, coming from the north; and



SCENE ON THE APURIMAC.

in long. 71° 30′ W. the Napo, also from the north. Here the great stream is five thousand four hundred feet in breadth, and six hundred feet in depth. Between the junction-points of the Rio Negro and the Madeira—that is, between long. 60° W. and long. 58° 30′ W.—its average width is three miles; but it often broadens to six miles, and, studded as it is with wooded islands, assumes all the appearance of an inland lake. Further eastward the breadth greatly increases; and towards its embouchure the opposite bank can scarcely be discerned. From the Rio Negro to the sea—a distance of about eight hundred miles in a straight line—its depth is never less than one hundred and eighty feet; and its mighty flood is navigable by the largest vessels up to the confluence of the Tungaragua and the Ucayale. The numerous shoals, and the masses of timber brought down from the virgin forests, are, however, considerable obstacles to its secure navigation.

The velocity of the current of the Amazons varies from two miles and a half to four miles an hour, but in the dry season it greatly diminishes; and in the last seven hundred miles of the river's course it is slackened by the inconsiderable fall of the river,

amounting to not more than twelve feet. Tremendous inundations, which sweep over the surrounding country for many miles, are of frequent occurrence. The influence of the ocean-tides is felt as far inland as Obidos, a town four hundred miles distant from the coast. The remarkable phenomenon of "the bore" occurs at the embouchure of the Amazons two days before and two days after full moon. Then the ocean-waters accumulate, as it were, into one vast liquid mass, and roll into the channel of the estuary in three or four gigantic waves, each twelve to fifteen feet high, driving back the river-current, and producing a whirlpool of terrific violence.

In addition to the great tributaries already mentioned, we may name the Hyabary, the Jutay, the Jurua, the Teffé, the Coary, the Madeira, the Purus, the Tapajos, and the Xingu: these all flow into it from the south. From the north it receives, besides the Napo, the Negro, and the Japura, only the Pulumayo, which has a course of about a thousand miles.

We first hear of the Amazons in European history in 1500, when its mouth was discovered by the Spanish adventurer, Yanez Pinçon; but little was

known of it until Francis d'Orellana descended its stream from the confluence of the Rio Napo to the ocean. This was in 1539. Among the many wild and wonderful stories related by Orellana was that of the existence of a tribe of female warriors on its banks, who in their youth cut off the right breast in order to allow of the freer use of their great weapon, the bow. Hence the name of "Amazons" came to be applied to the river; which was also known as the "Orellana," from its explorer, and as the "Marañon," from an Indian nation inhabiting one part of its valley.

Various expeditions were afterwards made by the Spaniards, which opened up the head waters of the mighty river; though much that is fabulous is mixed up with the little that is accurate in the narratives of those expeditions that have come down to us. In 1561, it is said, one Juan Alvarez Maldonado started from Cuzco, and descended the eastern range of the Andes. On reaching the plain, he and his followers fell in with two pigmies. They cruelly shot the female, and the male died of grief shortly afterwards.

Descending the great river Mano—which must have been one of the tributaries of the Amazons—

for about two hundred leagues, they landed upon a beach, and a detachment of soldiers penetrated into the forest. There they found trees so tall as to exceed an arrow-shot in height; and so large that six men, with outstretched arms and joined hands, could hardly circle them. Lying on the ground was a man, fifteen feet in height, with limbs in proportion; long snout, and projecting teeth; vesture of beautiful leopard-skin, short and shrivelled; and for a walking-stick a tree, which he played with as if it had been a cane. On his attempting to rise, the Spaniards, perhaps in terror, shot him dead, and returned to the boat to give notice to their companions. But when they reached the spot they found that the dead body had been carried off. Following the track towards a neighbouring hill, they heard such shouts and vociferations proceeding thence that they were astounded, and, horror-stricken, fled.

Another strange story of those early expeditions may interest the reader:—

Between the years 1639 and 1648 Padre Tomas de Chaves, a Dominican, endeavoured to convert the Indian tribe of the Chunchos; and twelve of these accompanied him to Lucia, where they were baptized.

He then returned, and lived among the Indians for fourteen years, making excursions in various directions. His last was in 1654, among the Moxos—Indians who live on the banks of the Mamoré, an affluent of the Amazons basin. There he cured a cacique of some infirmity; and the "emperor" of the Musus—the great *Paititi*, or Gilded King of the Spaniards—despatched six hundred armed men to the cacique of the Moxos, demanding that the reverend father should be sent to cure his imperial consort. The Moxos were induced to part with their physician only under menace of extermination; but it was obviously better a few should die of disease than all be killed by the Musus. Accordingly, the padre was borne away in triumph on the shoulders of the emperor's guards. After travelling thirty days, he came to a stream so wide that its opposite bank was scarcely visible: this is supposed to have been the Beni, a principal tributary of the Madeira. Here the Indian ambassadors had left their canoes, which were duly loosed from their moorings: the party embarked, rowed down the river for twelve days, and then landed at a large town, inhabited by an incredible number of savages, all soldiers, guarding this great port of the river, and entrance into

the empire of the Musus. No women were to be seen: they lived in another town a league distant, visiting the other only by day with food and drink for the warriors, and returning at night.

The padre observed that the river at this place divided into many arms, all of which appeared to be navigable, and formed large islands, occupied by populous towns. Thence he travelled for twenty-seven days before he reached the imperial court. The emperor came forth to meet him, attired in the finest and most delicate feathers of various colours. He treated his guest with distinguished courtesy; prepared for him a most sumptuous feast; and told him that, having heard of his wonderful medical powers, he had sent for him to cure the queen of a disease which had baffled the powers of all his doctors. The good father protested that he was no physician, never having been bred to the art; but observing that the queen was tormented by devils ("obsesa"), he exorcised her according to the Roman Catholic formulary, and she thankfully became a Christian.

For eleven months the padre remained at the emperor's court; at the end of which time, finding that the wine and flour for the sacred elements

were almost spent, and having baptized an infinite number of infants on the point of death, he took leave of their majesties—recommending to the queen that she should hold fast the faith she had received, and abstain from all offence towards God. He refused from the Gilded King a great present of gold, silver, pearls, and rich feathers; whereat the monarch and his courtiers marvelled much.

We have allowed ourselves, however, to diverge from a chronological record. The object of the Spaniards was not, as our readers will remember, to enlarge the bounds of geographical knowledge, but to find that Land of Gold, that fabulous "Dorado," which was the object of so many hopes and the cause of so much waste of life—that "Dorado" which fired the fancies even of our English poets, and stimulated the enterprise of Sir Walter Raleigh. In 1560 the Marquis de Cañete, then Viceroy of Peru, despatched Don Pedro de Ursoa, with a large company of soldiers, in quest of the Golden Land. Marching northward from Cuzco, he embarked upon the Huallaga; but at Lamus, a small town near that river, was murdered by his lieutenant, Lope de Aguirre, who then assumed the command of the expedition. Aguirre passed from the Huallaga into

the Amazons, which he descended to its mouth. Thence he coasted the rich shores of Guiana and Venezuela, and seized upon the small island of Santa Margarhita. His ambition increasing with his success, he landed at Cumana, with the bold design of founding an empire by his sword; but being defeated by some Spanish troops who had already occupied the country, he was taken prisoner and sent to Trinidad, where he was tried for treason, condemned, and hung.

Aguirre is spoken of as a cruel and violent, as he certainly was a courageous and resolute, man. Humboldt reprints his letter to King Philip II., and it affords a striking illustration of his character. Thus it runs :—

"On going out of the river Amazons, we landed at an island called Santa Margarhita. There we received news from Spain of the great heresy of the Lutherans. It frighted us exceedingly; and finding among our number one of that faction, named Monteverde, I had him cut in pieces, as was just; for believe me, signor, wherever I am, people shall live according to the law.

"In the year 1559 the Marquis de Cañete sent to the Amazons Don Pedro de Ursoa, a Navarrese,

or rather a Frenchman. We sailed on the largest rivers of Peru, until we came to a gulf of fresh water. We had already gone three hundred leagues, when we killed that bad and ambitious captain. Then we chose for leader a cavalier of Seville, Don Fernando de Guzman; and swore fealty to him, as is done to thyself. I was named Quartermaster-general; but because I did not assent to all his commands, he wanted to kill me. But I killed this new king, his captain of the guards, his lieutenant-general, his chaplain, a woman, a knight of the order of St. John, two ensigns, and five or six of his servants. I then resolved to punish thy ministers and thy auditors: I named captains and sergeants. These, again, wanted to kill me; but I had them all hanged. In the midst of these adventures we navigated eleven months, until we arrived at the mouth of the river. We sailed upwards of fifteen hundred leagues. Heaven knows how we voyaged over so vast an extent of water! I advise thee, O great king, never to send Spanish fleets into that accursed river."

An anecdote of this wild adventurer, related by Ulloa, recalls, " with a difference," the Roman story of Virginius and his daughter.

It would seem that a favourite daughter was his companion in all his marches. At the close of his reckless career, when defeated and surrounded so that escape was impossible, he called her to him and said: "I had hoped to have made thee a queen. This is now impossible; but I cannot endure the thought that you should live to be pointed out as the child of a felon and a traitor. Thou must prepare for death at my hands." She begged him to allow her a few minutes for prayer. He consented; but growing impatient at the length of her devotions, or fearing that his enemies would be upon him, he fired upon her while she was still kneeling. The unfortunate lady staggered towards him; but taking her by the hand as she approached, he drove his knife into her bosom, and she fell at his feet, murmuring, "*Basta, padre mio!*" ("It is enough, my father!")

From the voyages of such wayward rovers as these, it could not be expected that geographical science would gain much that was useful or exact; and, in truth, our first accurate information of the Amazons and its valley is due to the labours of the Roman Catholic missionaries, who worked among

the Indians with so much courage and devotedness. The first missionary stations in the upper portions of the valley—the Montaña, as the Spaniards called it—were founded by the Jesuit fathers, Cuxia and Ceuva, in 1637, beginning at the village of St. Francis de Borja, on the left bank of the Marañon.

In the same year, if Ulloa may be credited, Pedro Texiera, a Portuguese captain, ascended the Amazons with a fleet mounting forty-seven large guns. After an eight months' voyage from Para, he arrived at the port of Payamino (or Frayamixa), on the river Napo. Leaving his fleet there, he repaired with some of his officers to Quito. The "royal audience," or Spanish administrator of that city, determined on sending explorers with him on his return; and the Jesuit fathers, Acuña and Artieda, were chosen for this purpose, with orders to report all they saw and heard to the King of Spain. Passing through the town of Archidona, which is situated on the head waters of the Napo, they succeeded, after meeting with many adventures, and undergoing severe sufferings, in joining the Portuguese fleet at the port of Payamino, and after a journey of ten months' duration, by land and water,

arrived at Para, whence they sailed for the mother-country.

The Spanish Government was at that time engaged in a contest with Portugal; and being unable to obtain any assistance, good Father Artieda returned to Quito. Indefatigable in his efforts to diffuse a knowledge of the religion of the Cross, he appealed for help to the "royal audience" and the Jesuits' College of Quito, and by the latter was furnished with five or six missionary priests. They seem to have been very cordially received by the Indians; and so successful were their labours, that by 1666 they had established thirteen large and populous mission-settlements in the valley of the Upper Marañon, and in the immediate neighbourhood of the mouths of the Pastasa, the Ucayale, and the Huallaga.

Almost simultaneously, the Franciscan monks were advancing as missionaries and explorers from Lima, by way of Tarma and Jauxa, into the country drained by the head waters of the Ucayale; and in 1673, the missionary station of Santa Cruz de Sonomora was founded on the river Pangoa, a tributary of the latter. This was due to the heroic efforts of Father Manuel Biedma, who, with wonder-

ful perseverance, opened up mule roads in various directions, and in 1686, embarking with Antonio Vital at Sonomora, bravely descended the Ucayale to a point near its junction with the Pachitea. Here he planted a station called San Miguel de los Conibos, the charge of which he intrusted to Vital; and started on his return to Sonomora by water, but was killed by the savages. Vital, on hearing of his death, and finding himself alone, without hope of succour, resolved to continue his voyage down the river; and embarking in a canoe with six Indians, safely reached the Jesuit missions at the mouth of the Ucayale. Obtaining there the necessary instructions, he ascended the Marañon, the Huallaga, and the Mayo as far as it is navigable. Then, disembarking, he proceeded overland to Lima and Jauxa.

At the same time, Franciscan missionaries, starting from Tarma, and penetrating into the valleys of Chanchamayo and Vitoc, set on foot the missions of the Cerro de la Sol and the Pajonal. The former is described as a mountain of rock and red earth, traversed by strata of salt thirty yards in breadth, from which the Indians over a considerable extent of country obtain their supply. The Pajonal is a broad grassy plain lying between the Pachitea and

a great curve of the Ucayale. It measures one hundred and twenty miles in length from north to south, and ninety from east to west.

Missions were afterwards established in the Pampa del Sacramento under the following circumstances:—

Those planted by Biedma and others on the Ucayale, in 1673 to 1686, were swept away during the Indian revolt of 1704. Twenty-two years later, the Christianized Indians on the Huallaga, crossing the hills that border the eastern bank of the river, came upon a beautiful wooded level, which, the day of its discovery being the feast of Corpus Christi, they named the Pampa del Sacramento. Thither the Roman mission-priests made haste to penetrate; and though they met with many difficulties, and some of them perished in their Christian work, they persevered until numerous conversions had been effected, and several stations founded.

It has been justly remarked by Herndon that the difficulty of penetrating into these countries, where the path is to be opened up for the first time, can be conceived only by one who has travelled over the roads already trodden. The broken and precipitous mountain-track—the deep morass—the dense

and intertangled forest—the dangers arising from Indians, wild beasts, reptiles—the scarcity of provisions—the awful deluges of rains—the perils of the impetuous and rock-obstructed river, at every moment menacing the wreck of the frail canoe,—these are obstacles which might daunt the heart of any but the gold-hunter or the missionary. It is to the patient and noble labours of the latter that the world owed all its knowledge of the vast regions watered by the great South American rivers.

Some remarkable adventures on the Amazons were experienced in 1769 by Madame Godin des Odonais, on her way from Quito to join her husband, who had contemplated an expedition up the river, at Cayenne, where he was detained by illness.

From Quito, on receiving intelligence of her husband's ill-health, Madame Godin proceeded to Riobamba, and then she crossed the Andes, to embark at Canelos, on a tributary of the Amazons, with the view of descending that mighty river. She found the village infested with the small-pox, so that only two Indians remained free from the contagion. These had no boat, but they undertook to construct one, and to pilot it as far down as the

mission of Andoas, on the Bobonaza river, a distance of from one hundred and forty to one hundred and fifty leagues. The canoe being finished, Madame Godin started from Canelos; but on the third day of their voyage the Indians absconded, and she and her attendants (her brothers, a nephew, a physician, her negro, and three female half-breeds) were left without any experienced hand to steer their frail craft.

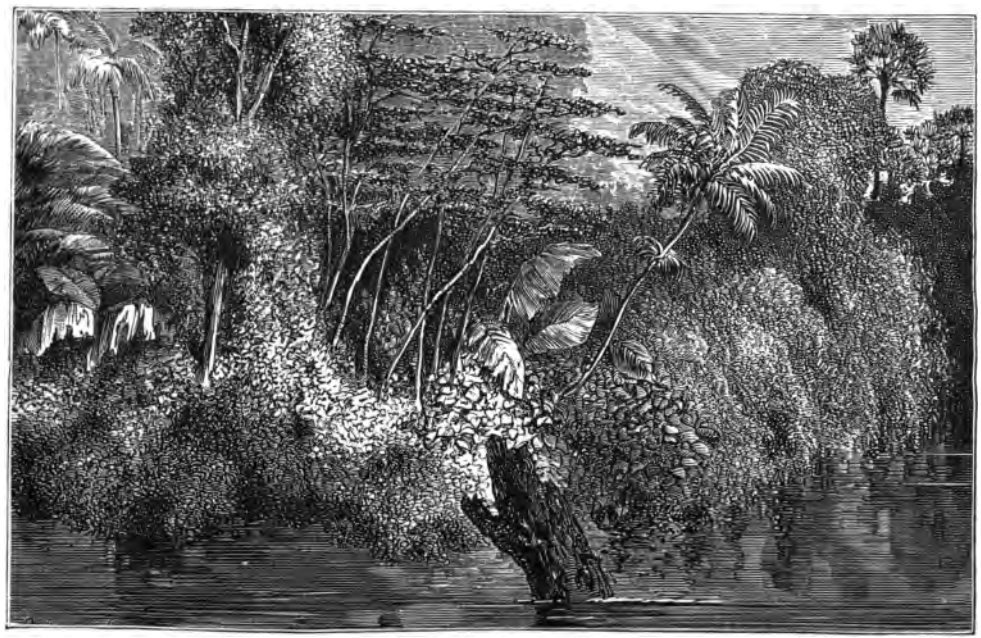
Next day at noon, however, they discovered a canoe lying in a small cove near a leaf-thatched hut, in which was a native recovering from illness, who consented to pilot them. Two days passed very pleasantly, but on the third the poor man accidentally fell overboard, and being too weak to contend with the current, was drowned. The canoe, again abandoned to persons incapable of managing it, was soon afterwards capsized, compelling the party to land and build themselves a hut, while one of them was sent to Andoas in quest of assistance. Five-and-twenty weary days passed by, however, and he did not return, nor came there any messenger from him. The castaways therefore set to work to build a raft, on which they ventured to embark, with their provisions and property. The raft, ill-constructed, drove against the branch of a sunken

tree and was overset, all the stores being destroyed, and the whole party plunged into the water. Fortunately, at the point where the accident happened the river was very narrow, and no loss of life was experienced—Madame Godin herself, after twice sinking, being rescued by her brothers.

They now resolved on continuing their course along the river-bank; a difficult task, the track winding through a dense forest, where festoons of lianas and uprooted trees formed a succession of obstacles. Often it was necessary, axe in hand, to cut open a path. By following the course of the river in all its windings, they found their journey seemingly prolonged; and therefore struck into the wood to take a more direct line. But in a few days they lost themselves, and, their provisions being exhausted, were compelled to subsist on a few seeds, wild fruit, and the palm cabbage. Their feet bleeding with wounds, and their frames spent with hunger, thirst, and fatigue, they threw themselves on the ground, utterly incapable of moving another step; and there they lay for three or four days, until death released them from their sufferings. Madame Godin alone survived; half-delirious, stupified, and tortured by the agony of

thirst, she summoned energy enough to leave the scene of death, and to drag herself along in the hope of meeting with assistance. Her clothes were torn to shreds, and her feet were bare. Cutting the shoes from her dead brother's feet, she fastened them on her own; and tottered onward, onward for eight days or more. Such was the nature of her sufferings, intensified necessarily by her solitariness, and by the natural dread of spending night after night in the forest-depths, that her hair turned gray. On the second day she fortunately discovered some fresh water, and on the third day some wild fruit and birds' eggs; and though she found the effort of swallowing very painful at first, she in this way recruited her strength sufficiently to endure the further fatigues of her journey.

Were it told, says M. Godin, in his narrative of his wife's adventures,—were it told in a romance that a delicate female, accustomed to the luxurious conveniences of life, had been precipitated into a river; that, after being rescued when on the point of drowning, this female, the eighth member of a party, had penetrated into unknown and pathless woods, and travelled in them for weeks, ignorant in what direction she bent her steps; that, enduring



VEGETATION OF THE LOWER AMAZON.

hunger, thirst, and fatigue to very exhaustion, she should have seen her two brothers, both stronger than herself, a young nephew, three young women-servants, and the domestic left behind by the physician, who started in advance to look for help, all expire by her side, and she surviving them all; that, after remaining by their dead bodies two whole days and nights, in a country abounding in jaguars and poisonous serpents, without once seeing any of these creatures, she should afterwards have strength to rise, and, covered with rags, continue her way through the pathless forest for eight successive days, until she reached the bank of the Bobonaza, the author would be charged with exaggeration; and yet every statement is literally true.

Of late years, however, we have been accustomed to hear of daring enterprises undertaken by women, and of great sufferings heroically borne. Madame Godin's narrative, therefore, does not excite in us the surprise or incredulity that it excited in the minds of her contemporaries, strange and exciting as it certainly is.

After resting, for the ninth night of her wanderings, on the bank of the Bobonaza, she was roused at daybreak by a noise at about two hundred paces

from her. In her first alarm she rushed into the wood; but a little reflection convinced her that she had nothing to fear; that, indeed, her condition could not possibly be worse than it then was. She returned to her resting-place, and found a couple of Indians launching their canoe into the river. They received Madame Godin with the greatest kindness, and readily agreed to conduct her to Andoas.

On arriving at the Jesuit mission there, she might well have expected that her troubles would be at an end. But the missionary then in charge was a man of cold and avaricious nature: he behaved with a rudeness and a greed which so disgusted Madame Godin that she insisted on leaving immediately for Laguna. Her welcome there was of a very different character. Dr. Romero, the new chief of the missions, paid her every attention that her feeble condition demanded; and his kind and skilful treatment during her six weeks' residence at Laguna did much towards the re-establishment of her health. A messenger was sent to Ouraguas, whither the unfaithful physician had betaken himself; and soon afterwards he joined her at Laguna, bringing with him "four silver dishes, a silver saucepan, a velvet petticoat, one of Pusiana and one of taffety, some linen, and various

insignificant articles;"—the rest of her property Madame Godin never recovered. The physician endeavoured to persuade her to return to Riobamba; but this she resolutely refused, being bent on joining her husband. After some delay, the Portuguese authorities provided her with a galliot, properly equipped, and attended by a couple of canoes, to descend the river. The descent was accomplished with comparative ease, and each rapid passed in safety. At the different towns she halted for rest and refreshment; and her voyage, though difficult and tedious, was unattended by any actual danger.

Madame Godin's sufferings, however, were not entirely at an end. One of her thumbs was in a very bad condition, owing to the wounds it had sustained from thorns in the wood. These not having been extricated, had not only occasioned an abscess, but had injured the tendon, and even the bone itself. It was proposed to amputate the thumb; but by dint of care and fomentations she had nothing worse to undergo than the extraction of a couple of splinters at San Pablo. She lost, however, the use of the tendon.

The galliot continued the descent of the river,

through the shades of the virgin forest—then almost wholly unknown to science—until it reached the fortress of Curupe, about sixty leagues above Para. Here M. de Martel, an officer of the garrison of Para, arrived, by order of the governor, to take command of the galliot, and conduct Madame Godin to Fort Oyapok. A little beyond the mouth of the Amazons estuary, at a spot off the coast where the currents are very impetuous, he lost one of his anchors; and as it would have been rash to proceed with only a single anchor, he sent in a boat to Oyapok to seek assistance. By this means M. Godin, who had left Cayenne and reached Oyapok, heard of his wife's approach, and embarked on board a galliot of his own to meet her. On the fourth day of his departure he fell in with her vessel opposite to Mayacare. And thus, after an absence which circumstances had extended over a period of twenty months, and patient endurance, on both sides, of misfortunes and sufferings, he once more embraced a cherished wife, who had shown herself possessed of the most heroic qualities. They anchored at Oyapok on the 22nd of July 1770.

Of late years the virgin treasures of the forests of

the Amazons, and the extraordinary beauty of their scenery, have attracted many travellers; and both natural history and geographical science have profited largely by the adventurous researches of a Wallace, an Edwards, a Biard, an Agassiz, and a Bates. Borrowing from their labours, we proceed in the following pages to sketch the principal features of a region which may hereafter become THE GARDEN OF THE WORLD.

THE AMAZONS: RECAPITULATION.

[The Amazons has some claim to be considered the Queen of Rivers. The basin which it drains comprises about two million square miles, or a superficial area nearly equal to that of Europe. In conjunction with its tributaries and sub-tributaries, it supplies the states of Brazil, the Guianas, Peru, Venezuela, Colombia, Ecuador, and Bolivia with an inland navigation of fifty thousand miles.

From its sources—which lie within sixty miles of the Pacific—to its mouth in the Atlantic it measures four thousand miles in length. Its mouth is about one hundred and fifty miles wide, and extends the tidal influence for six hundred miles; while such is its volume of water and such its force of current that it drives back the ocean upwards of fifty leagues.

Its principal tributaries are: the Napo, the Pulumayo, the Japura, and the Negro—the last connecting it with the Orinoco—from the north; and the Huallaga, the Javari (or Cavary), the Jutay, the Jurua, the Teffé, the Coary, the Purus, the Madeira, the Tapajos, and the Xingu, from the south.

The main stream, the Marañon, is navigable inland for three thousand three hundred and sixty miles.

While, as we have said, the Rio Negro connects the Amazons with the Orinoco, through the Rio Branco and the Cassiquiare, the Tapajos brings it within a distance of only eighteen miles from a branch of the river La Plata; so that a short canal would complete this wondrous system of inland water-communication, and enable a boat to pass from the Orinoco into the Plata.

The principal towns on the Amazons are Manoa, Obidos, Ega, Santarem, and Para. Steamers now ply upon the river; and it is a curious fact that the wind almost always blows from the eastward, thus assisting them in their ascent, while in their return voyage they have the advantage of the strong, swift current.]

CHAPTER II.

LIEUTENANT HERNDON'S VOYAGE DOWN THE AMAZONS.

IN 1851 Lieutenant Herndon, of the United States Navy, received instructions from his Government to undertake the exploration of the valley of the Amazons; and for this purpose set out from Lima in the month of May, and proceeded to cross the barrier of the Andes. Descending the westward face of the mountain-range in the following month, he arrived at Tarma; where the reader and ourselves will find it convenient to take up the narrative of his expedition.

The houses of Tarma—which is finely situated in an amphitheatre of mountains, clothed nearly to their summits with waving crops of barley—are built of adobe, or sun-baked clay, with wood and iron work of the rudest description: those of the better class are whitewashed within and without. To gain a good view of the inhabitants, the traveller should

frequent the market-place on market-day, which unfortunately is Sunday. He will then see the men dressed in ponchos, breeches buttoned at the knee, long woollen stockings, and tall straw hats. The women disport themselves in blue woollen skirts, tied round the waist, and left open in front so as to display the white cotton petticoat, with a mantle of two or three yards of bright-coloured plush, called "Spanish baize," thrown over the shoulders: the skirts of women of the well-to-do class generally consist of a coloured print, or muslin. It is not thought necessary, except when attired for company, to don the bodice of the dress; and this is allowed to hang down behind, and is covered by a gay shawl, passed around the bust, with the end falling gracefully over the left shoulder. The hair is always neatly dressed — parted in the middle, and hanging down the back in two long plaits. It is crowned by a trim low hat, ornamented with an abundance of black ribbon.

Tarma seems to be a great place for *fiestas*, or feast-days, which are encouraged by the Church, notwithstanding the riot and drunkenness too often connected with them. The public entertainments on such occasions consist of music, bell-ringing,

rocket-firing, and Indian dances. A dozen "vagabonds" get themselves up in what is supposed to be the costume of the ancient Indians: a red blanket pendent from one shoulder and a white blanket from the other; short blue breeches, trimmed at the knee with white fringe; stockings of any colour; and shoes or sandals of raw hide, tied around the burly ankles. A low-crowned, broad-brimmed hat, made of wool, and adorned with a circle of ostrich feathers, completes the paraphernalia. Thus attired, the pseudo-Indians march through the streets, halting every now and then to perform a kind of dance to the droning music of a reed pipe and a rude flat drum, both in the hands of the same performer. Each dancer carries a club of hard wood, with which, at certain intervals of the dance, he beats time on a small shield of hide or wood. An additional musical accompaniment is supplied by the jingling of the small bells called "cascabells," which are attached to the feet and knees.

By way of Cerro de Pasco and San Rafael, Lieutenant Herndon proceeded to Huanuco, situated on the left bank of the Huanuco or Huallaga river. It is one of the most ancient towns in Peru, though it does

not contain a single memorial of interest. After a brief rest he descended the Chinchao valley, passing a pretty village surrounded by cotton, coffee, orange, and plantain trees. Here, by the wayside, he noticed a pretty shrub with a gay red flower, which is called San Juan, because it blooms about St. John's Day. The country increased in picturesqueness of effect as he advanced; and a very fine picture, of a wild and striking character, was presented by the *mal-paso*, or rapid, of Palma, on the Huallaga, where the river, obstructed in its impetuous flow, broke into waves that dashed in foam and spray against the worn and jagged rocks, or swirled around and past them in thunderous violence.

At Tingo Maria our traveller reached the head of the canoe navigation of the river. The town, or village, is situated in a plain two thousand two hundred and sixty feet above the sea-level, which produces fertile crops of sugar-cane, rice, cotton, tobacco, indigo, maize, yuccas, and *sachapapus*, or wood-potatoes—the "large, mealy, purple-streaked, tuberous root of a vine, in taste like a yam, and very good food." In the surrounding woods prowls the puma, or American tiger, while deer and peccaries and monkeys abound. Several varieties of glossy-

plumaged curassows, wild turkeys, numerous species of parrots, black ducks, and cormorants, represent the bird-world; rattlesnakes and vipers, the world of reptiles. Bats are also met with, and among these the vampire. Herndon describes an individual shot by one of his companions as "disgusting-looking," though its fur was delicate, and of a glossy, rich maroon colour. Its mouth was amply provided with teeth: two long sharp tusks in the front part of each jaw; with two smaller, like those of a hare or sheep, between the upper tusks; and four, considerably smaller, between the lower. The nostrils seem fitted to act as a suction apparatus: above them is a triangular cartilaginous snout, nearly half an inch in length, and a quarter broad at the base; with a semicircular flap below them, nearly as broad, but not so long. Herndon conceived the idea that these might be placed over the puncture made by the teeth, and the air underneath exhausted by the nostrils; thus converting them into an admirable cupping-glass. But the truth seems to be that this much-dreaded bat is no blood-sucker at all, and that the stories told about it are as unveracious as those of Baron Munchausen.

Mr. Bates speaks of it as the largest of all the

South American bats, and as measuring twenty-eight inches across its outstretched wings. Nothing, he says, in animal physiognomy can be more hideous than the countenance of this creature when viewed from the front: the large, leathery ears project from the sides and top of the head—the curt, leaf-shaped appendage of the nose (whence its scientific name, *phyllostoma*)—its grin—and its keen black eye,—all combine to make up a figure reminding the spectator of some mocking imp of fable. It is, perhaps, not to be wondered at that the common folk should have attributed, in their usual fashion, demon-like instincts to so demoniac-looking a creature. Nevertheless, it is the most harmless of all bats, and a vegetarian in its diet, except that it occasionally partakes of a "relish" of insects.

At Tingo Maria Herndon met with his first specimen of a blow-gun—the usual weapon of the Indian hunter in the forests of the Amazons. It may be made of any long, straight piece of wood; and consists of a pole or staff about eight feet long, and two inches in diameter near the mouth-end, tapering to half an inch at the extremity, which is divided longitudinally. A canal or groove is then hollowed



VAMPIRE BATS

out along the centre of each part, which is well smoothed and polished by rubbing with fine sand and wood. The two parts are then brought together, firmly fastened with twine, and coated with a thick layer of wax, which has been mixed with some forest-resin to make it hard. Sometimes a couple of boar's-teeth are fitted on each side of the mouth-piece; and a curved front-tooth from any small animal, placed on the top, serves as a sight. Through this tube is propelled an arrow, or rather a dart, about a foot long, and as thick as a lucifer-match, made of very light wood, or of the middle fibre of a species of palm-leaf. The end of the arrow placed next to the mouth is wrapped with a light, delicate kind of wild cotton, called *huimba;* while the other end, which has an extremely sharp point, is dipped in a vegetable poison prepared from the juice of a creeping plant, mixed with strong red pepper, or any other deleterious substance. The Indian mode of using this sarbucan, or *zarabutuna*, is as follows:—The marksman places it to his mouth by holding it with both hands close to the mouth-piece, and then propels the arrow by blowing through the tube with all his force. A skilled Indian will kill a small bird at thirty or forty

paces. The quiver for carrying the poisoned darts or arrows is frequently a handsome bit of work; the body being formed of neatly-plaited strips of maranta-stalks, and the rim made of the highly-polished, cherry-coloured wood of the mirra-piránga tree.

Lieutenant Herndon embarked at Tingo Maria to descend the river. He and his party occupied two canoes; the larger of which, about forty feet long by two and a half feet broad, and hollowed from a single log, carried a crew of five men and a boy. One of these, the *puntero* or bow-man, looks out for rocks or sunken trees ahead; another, the *popero*, or steersman, stands on a little platform at the stern and directs the movements of the boat; while the rest are *bogas*, or rowers, who paddle away at need with equal skill and vigour, having one foot in the bottom of the canoe and the other on the gunwale. In the open, unencumbered parts of the river they drifted down with the current, in a lazy, indifferent ease; but on approaching a mal-paso, or rapid, they gathered themselves together like men who knew they had hard work to do, and meant to do it; and, guided by lookout-man and steersman,



SHOOTING WITH THE SARBUCAN

shot through the boiling waters at a tremendous pace, but in entire security. These mal-pasos are of frequent occurrence, and sometimes their passage is not unattended with danger.

The Indians, remarks our voyager, have very keen senses, and hear and see much that is inaudible and invisible to the duller white man; a circumstance due, of course, to the conditions under which they live, and the training that they receive from their very infancy. One morning the lieutenant's canoe-men began to paddle with unusual energy. What was the matter? Oh, they heard monkeys ahead. But they paddled fully a mile before Mr. Herndon could distinguish the sounds they spoke of. At last they came up with a troop of large red monkeys, grunting, among the foliage of some tall trees on the river-side, like a herd of angry hogs. They landed, and in a few minutes the lieutenant was pushing his way through the tangled copse with as much excitement as if he were a boy once more, and hunting squirrels. Three of the unfortunate monkeys were killed; one falling to the American's rifle, and two to the Indians' blow-guns. The tenacity of life of these animals is very remarkable; the one killed by

Mr. Herndon was, as the Indians expressively said, *bañado en municion* (bathed in shot). In size they resembled a common terrier-dog, and their bodies were covered with long, soft, maroon-coloured hair. They are called *cotomonos*, from a large swelling (*coto*) under the jaw; the said *coto* being a thin long apparatus in the windpipe, by means of which they produce their characteristic noise. The male, *curaso*, which is also the designation of the chief of an Indian tribe, has a long red beard.

These monkeys seem to have belonged to the tribe of Howlers, whose frightful unearthly cries make night in the forest hideous. Mr. Bates observes that it is curious to watch them while venting their "hollow cavernous roar," which is produced by a "drum-shaped expansion of the larynx," and causes but little muscular exertion. When howlers are seen in the woods, there are generally three or four of them perched on the topmost branches of a tree. Their harrowing cry does not appear to be caused by any sudden alarm, though it probably serves to intimidate enemies.

Parts of these animals are used by the Indians, who are by no means particular in their selection of remedies, for the cure of various diseases. The

female carries the young upon her back until it is able to go alone.

"When I arrived at the beach with my game," says the lieutenant, "I found that the Indians had made a fire, and were roasting theirs. They did not take the trouble to clean and skin the animal, but simply put him in the fire, and when well scorched, took him off and cut pieces from the fleshy parts with a knife; if these were not sufficiently well done, they roasted them further on little stakes stuck up before the fire. I tried to eat a piece, but it was so tough that my teeth would make no impression upon it."

With so much that is curious and interesting both in animal and vegetable life to engage the attention, and with so constant a succession of fresh and novel landscapes, the voyager down the Amazons finds time very agreeably occupied, and day after day glides by like the changes of a dream. Excitement is not wanting; for occasionally the roar of the puma is heard in the neighbouring forest, and occasionally the voyager's canoe is tossed in the eddies of a boiling rapid. Then ever and anon he reaches some river-side town, with its little port, or

mooring-place, and has an opportunity of examining the manners and customs of its inhabitants, most of whom are *Mestizos*, or descendants of mixed marriages. A convent is always one of the appendages of these strange, solitary, remote abodes, where only the ebb of the wave of civilized life seems to expend itself.

Among the birds of the Amazonian valley, the voyager will probably be much impressed by that which the Spaniards call *El alma perdida*, or "the lost soul." Its song is peculiarly soft and plaintive, and echoes through the silent forest like the wail of Marguerite in Goethe's *Faust*. The Quichua Indians call it *Pa-pa ma-ma*, and relate in connection with it the following story:—An Indian and his wife went out into the woods to work, carrying with them their babe. While the mother repaired to a spring to obtain some fresh water, the child was left in charge of the father, who received the most emphatic instructions to take good care of it. On coming to the first spring the woman found it dry, and started off in search of another. Meanwhile her husband grew alarmed at her long absence, left the child, and went to look for her. When they returned the infant was gone; and to their repeated

cries, as they roamed the woods in quest of it, they received no answer but the melancholy notes of a little bird, then heard for the first time, *pa-pa. ma-ma.*

The manatee, or sea-cow, the Spanish *vaca marina* and Portuguese *peixe boy,* is an inhabitant of the Amazons and its principal tributaries. When full grown, it averages about nine feet in length and six feet in girth. In appearance it is not unlike a large seal, with a smooth skin, dark on the upper part of the body, dirty white on the under, and thinly besprinkled with coarse hairs. The eyes and ears—or, rather, what serve for ears—are very small. The mouth, too, is small, but with a thick wide upper lip. It has no teeth, but is furnished with a kind of cushion attached to both jaws, which is well adapted for the mastication of vegetable food. The broad, flat tail is placed horizontally; and, in conjunction with two large fins, placed near the jaws, enables it to make its way through the water with considerable velocity.

The capture of a manatee is made by the Indian canoe-men the occasion of a holiday. They all disembark, and hasten into the forest to perform the

processes of skinning and cooking. The finer flesh is cut into dice-shaped pieces, and each person skewers a dozen or so of these on a long stick. Large fires having been kindled, the impromptu spits are stuck in the ground around them, so as to stand over the flames and expedite the roast. The Indians are very partial to this dish, but the white voyager is apt to pronounce the meat coarse and tough; while the fat, which is of a greenish colour, has a decidedly disagreeable flavour.

As the voyager nears the confluence of the Huallaga with the Marañon, he gets into what is known as the lake-country; and thence, even to the mouth of the Amazons, the river is bordered on each side by large lakes which communicate with the river by irregular channels, winding through the dark glades of the virgin forest. They are frequented by immense numbers of cranes, cormorants, and water-fowl generally, and also by legions of turtle. The Indians have a tradition that many of these remote forest-pools are guarded by an immense serpent, which can create such a tempest and tumult in their waters as to swamp the canoes, whereupon it immediately devours their rowers. It is known

as the *Yacu Mama*, or "mother of the waters;" and the Indians will not enter a lake with which they are unfamiliar until they have roused every echo with the clang of their horns. If the serpent be there, it immediately answers; and to be forewarned is, in this case as in every other, to be forearmed.

Here is a description of the monster given by Father Manuel de Vernazza, writing in 1845:—

"The wonderful nature of this animal," he says, "its figure, its size, and other circumstances, enchain our attention, and lead us to reflect upon the infinite power and wisdom of the Creator. Its appearance alone suffices to confound, intimidate, and inspire respect into the heart of the boldest. He never seeks or follows the victims on whom he feeds; but such is the force of his inspiration, that he draws in with his breath any bird or quadruped that may pass within twenty to fifty yards of him, according to its size. The one which I killed from my canoe, with five shots of a fowling-piece, was two yards in thickness and fifteen feet in length; but the Indians of this region have assured me that there are animals of this kind of three or four yards diameter, and from thirty to

forty feet long. These swallow entire hogs, stags, tigers, and men with the greatest facility; but, by the mercy of Providence, it moves and turns itself very slowly, on account of its extreme weight. When in motion it resembles a thick log of wood covered with scales, and dragged slowly along the ground, having a trunk so large that man may see it at a distance, and avoid its dangerous ambush."

The good father would seem to have met with and killed a boa constrictor; and the expression "two yards in diameter" is probably mistranslated for "two yards in thickness."

Our course now brings us to the junction, below the town of Laguna, of the Huallaga with the Amazons; the former at this point being three hundred and fifty yards wide, and the latter five hundred yards. The main branch of the Amazons, on which we now enter, bears its Peruvian name of Marañon as far as Tabatinga, on the Brazilian frontier; thence, to the confluence of the Rio Negro it is known as the Solimoens; after which it is called by the world-famous designation that geographers generally apply to the entire river.

"Its capacities for trade and commerce," says

Herndon, "are inconceivably great. Its industrial future is the most dazzling; and to the touch of steam, settlement, and cultivation, this rolling stream and its magnificent watershed would start up into a display of industrial results that would indicate the valley of the Amazons as one of the most enchanting regions on the face of the earth.

"From its mountains you may dig silver, iron, coal, copper, quicksilver, zinc, and tin; from the sands of its tributaries you may wash gold, diamonds, and precious stones; from its forests you may gather drugs of virtues the most rare, spices of aroma the most exquisite, gums and resins of the most varied and useful properties, dyes of hues the most brilliant, with cabinet and building woods of the finest polish and most enduring texture.

"Its climate is an everlasting summer, and its harvest perennial."

It should be added that this eternal summer is broken in upon by tremendous rains. But there can be no question that in few places on this wide earth can life be more pleasantly spent than in the wooded depths of the great Amazons valley. We rise at dawn to find the sky glowing with a cloudless blue; while the sun, on its rapid course

towards the zenith, absorbs the pearl-drops sparkling on branch and leaf and blade of grass. A wonderful activity pervades all nature; new leaf-buds and new flower-buds are opening everywhere around us. Yonder tree last evening was a dome of green foliage; now it glistens with a wealth of blossoms. The birds are in full vigour; and among the neighbouring fruit-trees resounds the shrill cry of the toucans. Above our heads, at such a height as to appear dim specks, fly small flocks of parrots, always in pairs, and the different pairs at regular intervals, and their chattering distinctly audible, as they wend on their busy way. While gradually the song-birds fill the air with music, and the insect-world awakens its various voices.

Towards two o'clock we feel the heat considerably increased, and by that time bird and mammal have once more relapsed into repose. The higher temperature has affected the leaves and flowers; the latter shed their petals, the former hang droopingly from their stalks. But there are signs of welcome rain. In the east the white clouds which gathered some time ago have given way to a sudden blackness, and this spreading rapidly upwards obscures the sun. A mighty wind sweeps through the



INTERIOR OF THE FOREST.

forest glades, rocking the tall trees as if they were reeds; a flash of lightning streams across the darkened sky; then comes a crash of thunder, and a tropical torrent of rain. The storm passes away as swiftly as it arose, but leaves some bluish-black clouds in the sky until night. Meantime, Nature has drunk of the brimming cup, and been refreshed; though fallen leaves and flower-petals lie in heaps under the wind-tossed trees.

Now comes still evening on, and life once more revives; the insect renews its hum, the bird its song. And this revival lasts until the presence of night makes itself felt in the forest, and every animal retires to rest, except those which wait for the cover of darkness to secure their prey.

The following morning brings with it another cloudless sky; and the daily cycle of phenomena goes round in the order already described. There is little change in one day compared with another, except that which marks the difference between the dry season and the wet: and as to this it may be said, that the dry season, from July to December, is refreshed with showers; and the wet, from January to June, with days of brilliant sunshine. The consequence is, says a distinguished naturalist, that the periodical phe-

nomena of plants and animals do not occur at about the same time in all species, or in the individuals of any given species, as is the case in temperate regions. There is no hibernation, as in cold countries; no summer torpidity, as in some tropical countries. Plants do not flower or shed their leaves, remarks our authority, nor do birds moult, pair, or breed simultaneously. Perhaps the dweller in the Amazons valley loses something by losing the different aspects of the different seasons. If he have no winter, he has no spring. The equatorial forest presents much the same aspect every day; for, in one species or another, budding, and flowering, and fruiting, and decaying is always going on. Nor is there any pause in the activity of birds and insects. Each species has its own time. For instance, the colonies of wasps do not die off annually, leaving only the queen, as in cold climates; but generation follows generation, and colony succeeds to colony without interruption. "It is never," says Mr. Bates, "either spring, summer, or autumn, but each day is a combination of all three. With the day and night always of equal length, the atmospheric disturbances of each day neutralizing themselves before each succeeding morn; with the sun in its

course proceeding midway across the sky, and the daily temperature the same within two or three degrees throughout the year,—how grand in its perfect equilibrium and simplicity is the march of Nature under the equator!"

But we must resume our narrative of Lieutenant Herndon's explorations. To name the different towns and villages, or the mouths of rivers, which he passed in his downward course, would be to perplex and weary the reader. At Nauta he purchased a larger boat, which he fitted up with a deck and cabin; and with twelve rowers, and a fresh supply of provisions, resumed his adventure. In the varieties of bird-life which frequented the river-banks he found a constant source of entertainment. Flesh-coloured porpoises tumbled about his boat; monkeys chattered among the boughs which impended over the waves; and fish of strange kinds were caught by the industrious hook and line. There was much to notice also in the dress and manners of the different Indians who inhabit the valley; for each tribe has its distinctive peculiarities. The Conibos, Shipebos, Selebos, Pirros, Remos, and Amajuacas are the nomads of the Ucayale region, roving from

place to place, and distinguishing themselves by their skill as boatmen and fishermen. Sometimes they reside in settlements on the river-banks; but many of them live in their canoes, and resort to the land only in bad weather, where they run up huts of reeds and palms.

At Tabatinga, which is inhabited chiefly by Ticuña Indians, with a small garrison of Brazilian soldiers, our adventurer quitted Peruvian territory, and crossed the confines of the empire of Brazil. At the same time the river lost its name of Marañon, and took that of Solimoens. A short distance below the town, it measured no less than a mile and a half in width; while it was sixty-six feet deep in the middle, and its current flowed at the rate of two miles and three-quarters per hour.

Below Tunantins, Mr. Herndon had an opportunity of seeing the people gathering turtle-eggs, for the purpose of making *manteiga*. A commandant, with soldiers, is yearly appointed to take charge of the beaches frequented by the turtle, prevent disorder, and administer justice. At the beginning of August, when the turtle begin to lay their eggs, sentinels are duly stationed; and they remain until



TICUÑA INDIANS

the beach has been cleared. The eggs, in however offensive a condition, are collected, thrown into a canoe, and subjected to a vigorous treading process by the Indians. The shell and young turtle are flung aside; and water being poured on the residue, it is left to stand in the sun for several days. Then the oil on the top is skimmed off, and boiled in large copper vessels; after which it is stored in earthen pots of about forty-five pounds' weight. A turtle averages eighty eggs; and forty turtle will give a pot.

In December Mr. Herndon reached the mouths, one a few hundred yards from the other, of the Japura, a very important Amazonian affluent. The width of the Amazons at this point is between four and five miles. Soon afterwards he arrived at the comparatively busy little town of Ega. With respect to trade it occupies a very favourable position, being close to the mouths of three great rivers, the Jurua, the Japura, and the Teffé, which here expands into a noble sheet of water, five miles broad, partly enclosed by green wooded hills. Ega itself consists of a hundred or so of palm-thatched cottages, and white-washed red-tiled houses, each in the midst of

its little prolific orchard of orange, lemon, guava, and banana trees. Groups of stately palms, with tall, elegant shafts and feathery crowns, rise high above the buildings and the lower trees. From the small patch of white sandy beach a broad grassy street ascends to the open green in the centre of the town, and the rude barn-like church beyond, conspicuous by the wooden crucifix in front of it.

Lieutenant Herndon attended midnight mass in this church at Christmas-time. He found it well filled with well-dressed people, and some very pretty though dusky-skinned ladies. The congregation was devout; but the lieutenant's own feeling of devotion was much disturbed by the wretched grunting of a hand-organ used as an accompaniment to the singing!

The alligators that swarm in the river here are a drawback to the amenities of Ega. In the dry season they are apt to become very troublesome; and the bather cannot enjoy his usual aquatic promenade without danger. The European will do well, as a traveller suggests, to imitate the natives in not advancing far from the bank, and in fixing his eye on that of the monster which stares with a disgusting leer above the surface of the water; the body



MANUFACTURE OF TURTLE OIL.

being submerged to the level of the eyes, and the top of the head, with part of the ridge of the back, alone being visible. As soon as any motion is detected in the water behind the huge reptile's tail, a quick retreat is advisable. "I was never threatened myself," says our authority; "but I often saw the crowds of women and children scared, whilst bathing, by the beast making a movement towards them: a general scamper to the shore, and peals of laughter, were always the result in these cases. The men can destroy these alligators when they like to take the trouble to set out with montarias and harpoons for the purpose; but they never do it unless one of the monsters, bolder than usual, puts some life in danger. This arouses them, and they then track the enemy with the greatest pertinacity; when half-killed they drag it ashore and despatch it amid loud execrations. Another, however, is sure to appear some days or weeks afterwards, and take the vacant place on the station. Besides alligators, the only animals to be feared are the poisonous serpents, which are common enough in the forest."

Ega, in 1850, was only a village, dependent on Para, fourteen hundred miles distant, as the capital

of the then undivided province. In 1852, when a new province of the Amazons was created, it bloomed out into "a city;" and though even now its population is not fifteen hundred, it returns members to the provincial parliament at Barra, and has its assizes and resident judges, and other signs of respectability. In 1853, steamers began to ply on the Solimoens; and since 1855, one has run regularly every two months between the Rio Negro and Nanta in Peru, touching at all the villages, and accomplishing the whole distance of twelve hundred miles, in ascending, in eighteen days. Trade and population, however, have increased but slowly. Yet a great future must be in store for it! It will yet have a history of its own. For it is singularly healthy and enjoyable: surrounded by perpetual verdure, the soil is of marvellous fertility; the interminable streams and labyrinths of channels abound with fish and turtle; and in the lake-like expanse of the Teffé, which opens direct into the mighty Amazons, a fleet of great steamers might safely anchor at any season of the year.

Ega is a famous place for holiday-making, as is natural in so fine a climate, and in a country where

the people have so little to do. We suppose not a week passes without the excitement of a gala. Not only are innumerable saints' days celebrated, but also funerals, weddings, christenings, visits from strangers, and the like. The Irish custom of "waking" the dead is also an excuse for a subdued kind of revelry—the women and children sitting on stools round the laid-out body, with its crucifix and tapers, and the men gathering at the open door to smoke, drink coffee, and tell stories. The great festival of the year is that of Santa Theresa, the patron-saint; it lasts for ten days, beginning quietly with litanies sung in the church at close of day, the greater part of the population attending, all freshly and brightly dressed in calicoes and muslins. The church is lighted up with wax candles inside, and outside with tiny oil lamps, made of cups of clay, or halves of the thick rind of the bitter orange. It is not until towards the end of the festival that devotion gives place to fun. Then the managers of the festa keep open house, and for two days and a night the dancing, and drumming, and guitar-tinkling, and drinking by both sexes, are uninterrupted. These people at their merry-makings, says Mr. Bates, resemble very closely

our farmers and peasants at the rural holidays in sequestered parts of England. The old folk, who do nothing more than look on, get very talkative over their cups; the children gambol, and make a noise, and sit up later than usual; the dull and reserved suddenly grow loquacious; and the morose break out into effusive expressions of cordiality and new-born friendship. The Indian is generally taciturn, but on these occasions he gains the use of his tongue, and bores his listener with long-winded reminiscences of incidents which most people have forgotten, and none would care to have remembered.

In the amusements of the St. John's Eve festival, the principal part is played by the Indians, though the half-breeds are ready enough to contribute their share. With both a novel kind of masquerading seems very popular. They disguise themselves as animals, or dress themselves up in the most grotesque costumes imaginable. One of the cleverest will enact the Caypór, a wood-demon, of which the Indians are very much afraid. This is represented as a bulky, deformed monster, with a red skin, and long shaggy red hair hanging half-way down his back. The favourite animals are bulls, deer, jaguars, and

magoury storks, got up with the assistance of light wooden frameworks, covered with old cloth properly dyed, or painted, and shaped. "Some of the imitations which I saw," says Mr. Bates, "were capital. One ingenious fellow arranged an old piece of canvas in the form of a tapir, placed himself under it, and crawled about on all fours. He constructed an elastic nose to resemble that of the tapir; and made, before the doors of the principal residents, such a good imitation of the beast grazing, that peals of laughter greeted him wherever he went. Another man walked about solitarily, masked as a jabiru crane (a large animal standing about four feet high), and mimicked the gait and habits of the bird uncommonly well.....The maskers kept generally together, moving from house to house, and the performances were directed by an old musician, who sang the orders, and explained to the spectators what was going forward in a kind of recitative, accompanying himself on a wire guitar.....The performances take place in the evening, and occupy five or six hours; bonfires are lighted along the grassy streets, and the families of the better class are seated at their doors, enjoying the wild but good-humoured fun."

The favourite trees cultivated in the gardens of

Ega (or Teffé, as it is frequently called) are the cocoa-nut palm, the assai, and the papunha, or peach-palm. It should be added that to almost every house is attached a well-stocked turtle-yard,—the inhabitants depending largely upon turtle for their food.

Fishing-excursions are easily made from Teffé, and are not without a certain picturesque character. As our canoe enters one of the romantic leaf-hidden creeks so numerous in the forest, lazy alligators may be seen in the still glassy water, with their heads just raised above its surface; and a tall heron or two, planted on the shore, and apparently watching his reflection in the stream. On reaching a certain point, our Indian boatmen spring up to their necks in the water, and stretch the net; which, after a few minutes, they drag in to shore with a load of fish, reminding us of St. Peter's miraculous draught. The fish, as the net is landed, break from it in hundreds, leaping through the meshes and over the edges, and covering the beach with their scaly silver. The Indians show considerable skill in their management of the net, and lash the water with long rods to startle the fish, and drive them into its interior.

Mr. Bates describes a mode of taking fish which

is practised on the Tapajos. A poisonous liana called timbo (*Paullinia pinnata*) is used, but will act only in the tranquil waters of creeks and pools. A few rods, each about three feet long, are mashed and soaked in the water, until it becomes discoloured with the deleterious milky juice. Then, in some twenty to thirty minutes, all the smaller fishes over a tolerably wide area rise to the surface, floating on their sides, and with gills wide open. It is evident that the poison acts by suffocation; it spreads in the water slowly, but a very slight mixture seems sufficient to stupify them.

Occasionally the fish are *shot at*, with bow and arrow. The arrow is a reed, with a steel barbed point, which is fixed in a hole at the end, and secured by fine twine made from the fibres of pine-apple leaves. Necessarily, this singular method is successful only in the clearest water; and much skill is required, in taking aim, to allow duly for refraction.

Turtle-hunting is one of the principal occupations of the inhabitants of Teffé, and a description of the pastime will not fail to interest our readers.*

We start, therefore, for the turtle-pools, hidden

* Founded on the narrative of M. Agassiz.

away among the forest foliage, in a couple of canoes chiefly manned by Indians. A long reach of the river, unbroken by islands, opens out before us; a glorious breadth of rolling water, stretching away to the south-east. The country on the left bank is a portion of the alluvial land which forms the extensive labyrinthine delta of one of the great Amazonian tributaries, the Japura. Every year it is flooded at the time of high water; and it is intersected by a maze of deep and narrow channels, which afford an outlet for the waters of the Japura, or are connected with it by the interior water-system of the Cupiyó. This dreary tract of profitless land extends over several hundred miles, and contains in its midst an unnumbered complexity of pools and lakelets, haunted by turtle, alligators, fishes, and water-serpents. Our destination is a point about twenty miles below the village of Shinouné, and close to the mouth of the Ananá, one of the river-like outflows of the Japura.

After a three hours' voyage we make for the land, and bring-to under a steep bank of crumbling earth, which the river-waters, in their gradual subsidence, have shaped into a succession of terraces or beaches. The coast-line runs nearly straight for

many miles, and the bank rises about thirty feet above the present level of the river, with the forest-growth advancing to its very edge.

On landing, our appetites remind us of the need for breakfast. A couple of Indian lads set to work to kindle a huge fire, roast some fish, and boil coffee; while the others mount the bank, and with their long hunting-knives begin to clear a path into the forest.

Breakfast over, we cut a great number of short poles, and laid them crosswise on the path; then three light canoes, or *montarias*, which we had brought with us, were hauled up the bank with lianas, and rolled away for embarkation on the pool. Next, a large net, seventy yards long, was brought ashore, and transported to the fishing-grounds. These preparations were soon completed by the Indians, and when we ourselves arrived we found that they had already begun their sport. Perched on little stages called *montás*, made of poles and transverse joints bound together by lianas, they were shooting the turtle, as they rose near the surface, with bow and arrow. The Indians were apparently of opinion that to net the savoury animals was not a legitimate process, and desired first

to have an hour's practice with their old familiar weapons.

The pool covered an area of about four or five acres, and was completely encircled by the picturesque and luxuriant forest-growth. The margins for some distance were swampy, and covered with large tufts of a fine grass called *matupá*. In many places these tufts were mingled with beautiful ferns, while around them bloomed a ring of arborescent arums, springing to a height of fifteen or twenty feet. Then, as an outer circle, stood the taller forest-trees: palmate-leaved cecropias; shapely assai-palms thirty feet high, with their smooth and gracefully-curving stems topped by their crests of feathery foliage; small fan-leaved palms;—and, behind all, the dense masses of ordinary forest-trees, their branches hung with leafy climbers in the most fantastic streamers, garlands, and festoons. The whole scene was indescribably beautiful.

But from its fairy-like features we turned to wonder at the skill displayed by the Indians in shooting turtle. They did not wait for their coming to the surface to breathe, but watched for the ripples on the water, which indicated their movements underneath. These tracks are called the *sirirí;* and



INDIANS SHOOTING TURTLE.

as soon as one was detected an arrow flew from the nearest bow, and never failed to penetrate the cuirass of the submerged chelonian. When the turtle were at a considerable distance, the aim had necessarily to be taken at a considerable elevation; but this long range was preferred by the marksmen, because, as the arrow fell perpendicularly on the shell, it pierced more deeply.

The arrow used in turtle-shooting has a strong lancet-shaped steel point, fitted into a peg which enters the tip of the shaft. This peg is secured to the shaft by twine made of the fibre of pine-apple leaves,—the twine being from thirty to forty yards in length, and neatly wound about the body of the arrow. When the missile enters the shell out drops the peg, and the wounded animal descends with it towards the bottom, leaving the shaft floating on the surface. Thereupon the fisher paddles his montaria to the spot, and gently draws the animal by the twine,—manœuvring it as an angler does a salmon, and gradually bringing it near the surface, when he strikes it with a second arrow. The hold afforded by the two lines is such as to make the capture of his game quite easy.

Orders were now given to spread the net. A

couple of Indians seized it, and extended it in a curve at one extremity of the oval-shaped pool, holding it when they had done so by the perpendicular rods fixed at each end. Its breadth was about equal to the depth of water—five feet; consequently its shotted side rested on the bottom, while floats buoyed it up on the surface,—so that the whole, when the extremities were brought together, would form a complete trap. The rest of the company then took up their position around the swamp at the other end of the pool, and began to beat, with stout poles, the thick tufts of matupá, so as to drive the turtle towards the middle.

This activity lasted for an hour or more, the stir and shouts giving an air of great liveliness to the scene. Gradually the beaters drew together, driving the frighted chelonians in a huddled heap before them; and that the fishing went well was shown by the number of little snouts constantly popping above the surface of the water. When they neared the net we moved more quickly, shouted more lustily, beat the herbage more vigorously. The ends of the net were then seized by several stout hands, and hauled forward with a sudden motion which brought them into simultaneous contact; in this way the

victims were shut up in a circle. Straightway we all of us leaped into the enclosure, regardless of the leeches that infested the pool; the boats came up, and the turtle, easily captured by the hand, were thrown into them. Three boat-loads, or about eighty, were secured in twenty minutes. Having been taken ashore, each one was secured by the men tying the flippers with thongs of bast. They were nearly all young turtle, from three to ten years of age, and six to eighteen inches in length; fat were they, and succulent, and a *gourmet* would have regarded them with delight. Roasted in the shell, they formed a dish "for the gods." These younger turtle do not migrate with their elders when the waters sink, but haunt the warm muddy pools, growing fat upon fallen fruit. We caught also a few full-grown mother turtle, easily recognized by the horny skin of their breast-plates being worn, "telling of their having crawled on the sands to lay eggs the previous year." Some male turtle, or *capitans*, as the natives call them, were also found. These are distinguished from the females by their smaller size, more circular shape, and the greater length and thickness of their tails. The natives regard their flesh as unwholesome.

A little before sunset we dined on the river-bank, and the mosquitoes beginning to persecute us, we crossed the river to a sandbank about three miles distant, where we stretched ourselves round a large fire and beguiled the time with conversation. The Indians told some stirring stories of encounters with jaguar, manatee, or alligator; and mysterious legends concerning the *bouto*, as the large Amazonian dolphin is called. They told how of yore a certain bouto was accustomed to assume the shape of a beautiful woman, with long locks flowing loosely to her heels; and how at night she paced the streets of Ega, and sought by her blandishments to beguile young men into following her. Then, if any unwary youth accompanied her to the river-bank, she caught him round the waist, and with a shout of exultation plunged beneath the waves. It is curious to meet on the bank of the Amazons with a fable so like that of the Lorelei, or water-nymph, of the Rhine.

Fishing operations were resumed on the following morning, and an exciting incident occurred. When the net had been joined into a circle, and the men had leaped in, an alligator was found to be enclosed. The Indians showed no alarm, and simply expressed

their concern lest the creature should break the net. First one exclaimed, "I have touched his head!" then a second, "He has scratched my leg!" and when a third, a lanky Miránha Indian, was thrown off his balance, the laughter and shouting grew uproarious. At last a youth of about fourteen years of age seized the reptile by the tail, and clung to it firmly, until, its resistance being somewhat subdued, he could drag it ashore. The net was opened, and the boy slowly hauled the dangerous but cowardly monster through the muddy water for about a hundred yards. Meantime, one of the party cut a stout pole from a neighbouring tree, and dealt the alligator a blow on the head which instantaneously killed it. A good-sized individual it proved to be, with jaws upwards of a foot in length, and fully capable of snapping a man's leg in twain. Its species was the jacaré-uassú of the Amazons, the *Jacaré nigra* of naturalists.

Alligators, or caymans, as we have already said, swarm in the waters of the Upper Amazons; and it seems fitting that some reference should here be made to their characteristics. The natives speak of many species; but our best naturalists particularize only three, one of which is considered to be exceed-

ingly rare. Those most frequently met with are the jacaré-tinga, a small kind, five feet long in an adult, with a long slender muzzle and a black-banded tail; and the jacaré-uassu, of which we shall speak presently. The third is the jacaré-curua, found only in the shallow creeks.

The jacaré-uassu, or large cayman, grows to a length of eighteen or twenty feet, and attains a colossal bulk. Like the turtle, it has its annual migrations, retiring to the inland pools and flooded forests in the wet season, and in the dry descending to the main river. In the middle part of the Lower Amazons, or between the towns of Obidos and Villanova, it buries itself in the mud during the heats of summer, and lies in a state of torpidity until the rains return. But on the Upper Amazons, where the heat is never extreme, it does not adopt this habit; and a recent writer asserts that it is no exaggeration to speak of the waters of the Solimoens as being as thickly peopled with alligators as a ditch in England is with tadpoles during the summer season.

It would seem that the natives regard the cayman with mingled feelings of fear and contempt. Mr. Bates tells us that he once spent a month at



BOAT SURROUNDED BY ALLIGATORS.

Caiçara, a small settlement of half-civilized Indians, about twenty miles to the west of Ega. His host, one Senhor Faria, proposed to him that he should enjoy half a day's net-fishing on "the lake,"—that is, the expanded bed of a small Amazonian stream, on which the village was situated. With six Indians and a couple of the senhor's children, they set out in an open boat. The waters had sunk so low that the Indians had to carry the net out into mid-stream, and at the first draught two medium-sized alligators were brought to land. Being disengaged from the net, the Indians, with the utmost unconcern, allowed them to return to the water, though the two children were dabbling in it not many yards distant. The fishing was continued, both the Englishman and the senhor lending a helping hand; and each time a number of the reptiles, of different ages and sizes, were drawn up,—the lake, in fact, swarmed with alligators. After capturing a large quantity of fish, the party prepared to return, first securing one of the alligators with the view of letting it loose among the swarms of dogs in the village. The individual selected was about eight feet long; one man holding his head, and another his tail, while a third took a few lengths of a flexible liana, and deliberately bound

up the jaws and legs. Thus secured, the creature was laid across the benches of the boat, and during the return voyage it behaved with the utmost decorum. On reaching the village it was conveyed to the middle of the green, in front of the church, where the dogs were wont to congregate, and received its liberty,—a couple of persons arming themselves with long poles to intercept it if it made for the water, and the rest exciting and encouraging the dogs. The alligator's terror was extreme, though the dogs could not be induced to advance; and it made off for the water, full speed, waddling like a duck. An attempt was made to keep it back with the poles, but it grew enraged, and seizing the end of one in its jaws, wrested it from the hands of the person who held it. At length, to prevent it from escaping, it was summarily despatched.

This anecdote is a striking illustration of the cayman's timidity. It never attacks man if its intended victim prove to be on his guard; but it is not less crafty than cowardly, and knows when it can venture on an assault with impunity. A few days after the incident above recorded, the river-waters sank to a very low level, so that the port and bathing-place of the village lay at the foot of a long sloping

bank; and in the muddy shallows, before long, a large cayman made its appearance. Everybody was obliged, therefore, to exercise great vigilance when bathing; and, indeed, most of the people prudently contented themselves with using a calabash, and pouring the water over their persons while standing on the river's brink. Just at this time a large trading-canoe came up from Para; and, as usual, the Indian crew spent the first two or three days in wild revelry ashore. One of the men, in the hot drowsy noon, when almost all the inhabitants were enjoying their *siesta*, took it into his head, which was disordered with the fumes of drink, to go down alone to bathe. The only individual who saw him was the Juiz de Paz, or magistrate, a feeble old man, reclining in his hammock in the open verandah at the rear of his house; and he shouted to the intoxicated Indian to beware of the alligator. He had not time to repeat the warning, before the man stripped; and a pair of gaping jaws, suddenly rising above the surface, seized him round the waist and drew him under water. With a shriek of agony he disappeared. The village was aroused; the young men grasped their harpoons and hastened to the bank; but, of course, they could do nothing,—a

streak of blood on the surface of the water was all that told of the Indian's fate. Bent upon vengeance, they leaped on board their montarias; tracked the monster,—which, when it came up to breathe, was still mangling its victim's remains,—and killed it, with loud shouts of exultation.

It is curious to notice the promptitude and certainty with which the Indians of Ega discover the egg-deposits of the turtle. The reader must recollect that the beach of the Amazons is the haunt and breeding-place of many different kinds of animals; and that it is difficult to distinguish between the tracks of alligator, capivari, and turtle—between the nests not only of turtle and alligators, but of the various kinds of birds and fishes that lay their eggs in the mud or sand. However, with a quick but, so to speak, inquiring tread, the Indians walk rapidly over the sand, as if with "an instinctive perception" in their step; and the moment they set their foot upon a spot where eggs are deposited, though no sign is visible to the unaccustomed eye, they detect it immediately, and, stooping, dig straight down to the eggs, which are generally eight or ten inches under the surface. Besides these tracks and nests

may be noted the rounded shallow depressions in the mud, which, according to the fishermen, are "the sleeping-places of the skates." They are certainly about the size and form of the skate, and it is not improbable that the Indian account of their origin is correct.

Not less interesting than their animal-life is the vegetation on these beaches. In the rainy season more than half a mile of land, now exposed along the river-margins, lies wholly under water; the river rising not only to the edge of the forest, but flinging its turbid flood far into its leafy depths. In the glowing summer-days, however, the shore consists, first, of the beach; next, of a broad belt of tall grasses, beyond which are the lower shrubs and trees; and, in the rear of all, the stately forest-growth. It is then that vegetation makes an effort to recover lost ground; and the little turbanba (a cecropia) and a kind of willow (*Salix Humboldtiana*) spring up on the sand, and creep down to the brink of the waters—only to be destroyed when these again rise in their might.

During his stay at Ega, Lieutenant Herndon paid

a visit to a settlement of the Yagua Indians, accompanied by their padre or priest.

The Yaguas turned out in procession, with bells ringing and drums beating, to welcome their priest. Rude triumphal arches of palm branches had been erected, and under these he was conducted to the mission-house. The American stranger, however, was by no means favourably impressed with the appearance of the padre's flock. Their countenances, he says, wore a vacant and stupid expression. Their dress consisted of a girdle of bark round the loins, with a bunch of fibres of a different kind of bark, about a foot in length, dependent from the girdle before and behind. Similar but smaller bunches were hung around the neck and arms by a collar and bracelets of small beads. This, however, was the ordinary dress. On festival days they stained all their bodies a light brown, and then executed fantastic devices upon it in red and blue. The long tail-feathers of the macaw were stuck in the armlets, so as to rise above the shoulders; and a chaplet of white feathers from the wings of a smaller bird adorned the head. The dress of the women was simplicity itself—a yard or two of cotton cloth rolled around the hips.

Let us take a glance at the huts of the Yaguas. Long slender poles are fixed in the ground in opposite rows, at a distance of about thirty feet apart; by bringing the tops of these together, a rude kind of arched framework is formed, about twenty feet in height. In front of the openings of the said arch similar poles, though not all of the same length, are planted; and these are bent down and securely fastened to the tops and sides of the openings. Inside and outside they are held together by cross poles; and the entire structure is thickly thatched over, until it resembles "a gigantic bee-hive," with two or three small and narrow entrances. In the interior, sleeping-rooms are partitioned off by light walls of cane, each of which is often inhabited by a whole family; the central space being reserved for the general benefit.

On the whole, these Indians seem to lead an indolent and easy life. They hunt a little, and fish a little; but a large portion of their time is given up to smoking, sleeping, and drinking. Their sole trade or manufacture is hammock-making; the material employed being the fibres of the young shoot of a kind of palm. It must be owned that to obtain these fibres is no easy work, the tree being

defended by long sharp thorns, and so hard, that it takes a whole day to cut of a "cogollo," or crown. The leaves are then split into strips of a suitable width, and off these the fibres are dexterously removed with the finger and thumb. The women next set to work to twist the thread. Sitting on the ground, they take up a couple of threads, or yarns, of minute fibre, between the finger and thumb of the left hand, and lay them, slightly separated, on the right thigh. The twist is given by rolling each thread down the thigh, under the right hand; afterwards, with a slight, swift motion of the hand, two threads are brought together, and a roll up the thigh finishes the cord. A woman will twist fifty fathoms, about the size of common twine, in a day.

But we must now take leave of Ega, and in company with Lieutenant Herndon resume our descent of the great river.

One of the first points of interest is the lake of Coary,—a land-locked basin of water, which makes a splendid harbour, and is approached from the Amazons by a broad channel, half a mile in length. Next we come to the mouths of the Purus, which

are navigable only at high water, and in small canoes, with the exception of the principal mouth, situated one hundred and forty-five miles below Lake Coary. It is a fine-looking river, says Herndon, with moderately bold shores, masked by a great quantity of bushes growing in the water. These have a great number of berries, which are purple when ripe, and about the size of a fox-grape. The pulp is sweet, and is eaten.

At a distance of ninety-five miles from Pesquera, we reach the mouth of the Rio Negro. For some time we have been aware of its vicinity, its black waters being distinctly traceable in irregular channels as they cut through, not mingle with, those of the Amazons. The entrance is superb; probably two miles in width. Travellers have not exaggerated the deep colour of its waters, which look like black marble, and fully justify its appellation. When taken up in a tumbler, however, the water is of a light red colour, as if it had been tinted by juniper berries.

Ascending the Negro for a short distance, we drop anchor at Barra, or Manaos, the capital of the province of Amazonas.

It lies on high broken ground, on the left bank

of the river, and about seven miles from its mouth. Its elevation above the level of the sea may be computed at 1475 feet. Two or three glens, or valleys, watered by small streams, and spanned by stout wooden bridges, intersect it. Most of the houses are of one story, but some boast of two stories, and are built of wood and adobe, and roofed with tiles.

Opposite Manaos the Negro is about a mile and a half wide, and beautiful exceedingly, with green, low islands skirting its wooded banks. It is navigable, even for considerable vessels, to the Rio Maraga (400 miles), where the rapids begin; and the further ascent can be made only in boats. It connects the Negro with the Orinoco, thus establishing for the interior of South America a wonderfully complete system of water-communication. Most of the vessels, it is said, that ply on both rivers, are built at or near San Carlos, the frontier port of Venezuela, situated above the rapids of the Negro; and are sent down these rapids, and also up the Cassiquiare and down the Orinoco to Angostura, passing the two great rapids of Atures and Maypures, where the Orinoco takes a northerly direction. They are unable again to pass *up* the rapids. From Barra

or Manaos, at the mouth of the Negro, to San Fernando, on the Orinoco, is a voyage of fifty-one days. When the banks of these mighty streams and their tributaries, which afford a water-way of about twenty thousand miles, shall be inhabited by an energetic, industrial population, exchanging the rich products of their fertile soil for the commodities and luxuries of foreign countries; when the railroad shall traverse the now almost inaccessible depths of the virgin forest, and the steamboat plough the great waters; when agricultural science shall have developed the resources of regions as yet untilled and scantily inhabited,—there can be no question that the valleys of the Amazons and the Orinoco will become the seat of a powerful empire, and their ports the centres of an illimitable commerce.

From Manaos we may cross to the Hyanuary lake, on the western bank of the Rio Negro. A swift row of about an hour's duration takes us out of the broad expanse of the noble river; and, after doubling a beautiful wooded promontory, we pass into a shady creek or *igarapé*, which gradually narrows into one of these leaf-canopied, winding, picturesque streams that lend so peculiar a charm to

the virgin forest. From the lower branches of the trees depends a "ragged drapery," as Agassiz calls it, of long faded grass, marking the height of the last rise of the river to some eighteen or twenty feet above its present level. Here and there may be seen a snow-white heron in his characteristic attitude of meditation, on the low green bank, the sunshine falling on his bright, glossy plumage. The bushes glitter with numbers of *ciganas*, the pheasants of the Amazons; a pair of large king-vultures sweep over our heads, like a passing cloud; and now and then an alligator lifts its grisly jaws above the waves.

As we float along the beautiful forest-stream, our thoughts are naturally directed to the physical phenomena of this great Amazonian valley. A region of wooded country covering a whole continent, and inundated for more than half the year, cannot fail to possess a peculiar interest for the observer. It can hardly be spoken of as "dry land." True it is, as Agassiz remarks, that in this oceanic river-system the tidal action has an annual instead of a diurnal ebb and flow; that its rise and fall obey the influence of the sun and not of the moon; yet the country is not the less subject to all the



AN IGARAPÉ.

conditions of a submerged district, and as such we must think of it. And we must remember that no marine tides could so affect the manner of life of the inhabitants as these semi-annual changes of the water-level. For half the year the people sail through countries where, in the other half, they walk, though barely dry-shod, over the steaming ground; and, necessarily, in accordance with the alternations of the wet and dry seasons, they modify their costume, their habits, and their occupations.

But not only the life of the people,—the whole aspect of the country, the entire colouring and form and character of the landscape, undergo an absolute change.

When the mighty river rises fully forty feet, cascades and rapids disappear in the swollen flood; all the peculiar beauties of river-scenery, its miniature coves and its winding creeks, are blotted out; over each bold group of rocks pours the torrent in irresistible flow; while the forest glades for many a league resound with the hoarse thunder of the rolling waters.

All that we hear or read of the extent of the Amazons and its tributaries gives, as Agassiz remarks, no idea of its immensity as a whole. The

voyager must traverse its surface for month after month before he can comprehend how entirely it has gained the mastery over the land that lies along its borders. Its labyrinth of streams, lakes, and channels may not inaptly be described as a fresh-water ocean, intersected here and there by narrow isthmuses and swelling promontories. Its whole valley is an aquatic and not a terrestrial basin; and from this point of view it is not strange that its rivers, comparatively speaking, should be fuller of life than its forests.

While at Manaos, the traveller will find ample occupation in entering into the shadowy depths of the great forest, or tracing the course of one or other of the innumerable brooks which, as we have said, add so much to its attractiveness. M. Biard speaks of a journey of this description. Under the shade of lofty boughs he proceeded, one day, until he heard the distant sound of a waterfall. Pressing forward, he reached a great open space, surrounded by colossal trees, and shining with the waters of a pool, formed by the overflow of a noble cascade. Its waters were as black as those of the Negro. He followed the course of the stream through a maze of tall trees

and sharp thorny bushes, until he came upon a small Indian hut. There he was surprised by the number of animals: dogs and cats, a parroquet, some black hoccos with red beaks, and a host of other domestic birds, all living on terms of good fellowship. Every forest excursion reveals to the traveller some such quaint picture as this.

While at Manaos, too, we may see something more of Indian life. Between noon and four o'clock, very little is or can be done in this enervating climate, and everybody who can slings his hammock in some cool and shady spot, and abandons himself to day-dreams or to sleep. Then comes dinner; and after dinner we take our coffee outside, while our places round the table are filled by some Indian guests, who have been invited to a repast after their own fashion.

This over, the room is cleared of the tables, and swept; music arrives,—a flute, a viola, and a violin, —and dancing becomes the order of the evening. At first the forest-belles show some timidity at the presence of strangers, but by degrees the lively music kindles in them a corresponding animation. They are picturesquely clad in skirts of calico or

muslin, with loose cotton bodices, trimmed round the neck with a kind of lace, which they make by drawing the threads from cotton or muslin so as to form an open pattern, and by sewing those which remain over and over in order to secure them. Some of this lace is very fine and elaborate. Many of the women have their hair dressed with jessamine or roses stuck into their round combs, and several wear gold beads and ear-rings. The dances are peculiar, and one noteworthy feature is the quietly indifferent air of the women. In all the Indian dances the man is bold and forward, but the woman coy and languid, moving with an almost sleepy slowness. Her partner throws himself at her feet, but does not win a smile or a gesture of recognition. He stoops and pretends to be fishing, making motions as if he were drawing her in with a line, but the bait evidently does not take nor the hook hold; then he whirls around her, imitating the sound of castanets, and half encircling her with his arms,—still without response. Occasionally, indeed, they join together in a waltzing movement, but it is of the briefest duration.

A visit which Madame Agassiz, when she ascended the Amazons with her distinguished husband, paid

to an Indian *sitio*, or summer station, is interesting enough to deserve a record here.

We rowed up the lake, she says, through a strange, half-aquatic, half-terrestrial region, where land and water seemed combined in about equal proportions. Groups of trees rose directly from the waters, their roots hidden below the surface; while numerous decayed and blackened trunks, with all kinds of picturesque and fantastic forms, were clustered on every side. Here and there the trees had thrown off from their branches those remarkable aerial roots and epiphytous plants which are so characteristic of the virgin forest. At times, as the voyagers slowly passed along the green borders, they obtained glimpses of the remote wilderness, with its twining boughs and implicated leaves, where,

> "Like restless serpents clothed
> In rainbow and in fire, the parasites,
> Starred with ten thousand blossoms, flow around
> The gray trunks,"

and lianas and creeping vines weave an almost impervious network of foliage. Usually, however, the margin of the lake presented a gentle lawny slope,

> "Fragrant with perfumed herbs,"

and rich in a verdure so soft and yet so vivid that it seemed as if the earth had been born anew after its six months' immersion in the overflowing waters. Occasionally a tall palm lifted its crest above the green forest-line,—especially the light and graceful assai, its crest of plumes waving statelily in the breeze.

Half an hour's sail brought the voyagers to the landing-place of the sitio for which they were bound. Having disembarked, they followed a neatly-kept path winding through the forest. The sitio stood on the brow of a hill which, on the other side, dipped down into a deep broad ravine: this ravine was watered by a stream, and beyond it the land rose again with a succession of gentle undulations, very refreshing in their contrast to the generally flat character of the Amazonian scenery. The fact that this sitio, standing during the dry season on a hill overlooking the valley and its winding rivulet, is almost level with the waters when the stream is swollen by the flooded river, gives a striking idea of the difference of aspect between the dry season and the rainy.

The sitio, or establishment, consisted of a number of buildings,—the most conspicuous being a large

open room, used for the reception of guests, or as a dancing-hall, when visitors from Manaos and its neighbourhood come out for an evening dance, and remain all night. A low wall, about four feet from the ground, enclosed the sides, against which were placed rows of wooden benches. The two ends were closed from top to bottom with a screen of palm-thatch, very pretty, fine, and smooth, and of a delicate straw-colour. At the upper extremity stood a colossal embroidery-frame, large enough to have held that wondrous web at which Penelope wrought during the ten years' Trojan war, but containing an unfinished hammock of palm-thread, the production of the Indian senhora's needle. Sitting down on a low stool in front of it, she worked a little for the amusement of her visitors, showing how the two layers of transverse threads were kept apart by a thick, polished piece of wood not unlike a long broad ruler. Through the interval, the shuttle is passed with the cross thread; which is then, by the same piece of wood, pressed down and straightened in its place.

The room we have described stood on one side of a cleared and neatly-kept open space, about which, at various distances, were raised several little

thatched "cusinhas," as they are called, consisting mostly of a single apartment. Besides these, there was a large house, with walls and floors of dried mud, partitioned off into two or three rooms, and having a wooden verandah in front. This was the senhora's private residence. At some short distance down the hill was the mandioca kitchen, with the necessary apparatus. All around bloomed a thriving plantation of mandioc and cacao trees, with a few coffee shrubs planted at intervals.

We must now take our departure from Manaos. But before we resume our sketch of Lieutenant Herndon's adventures, we may turn to the lively narrative of M. Biard,—who descended the river in 1859,—and borrow the account of some of his experiences.

He too had visited Manaos, and made an excursion up the Rio Negro. On regaining the Amazons, he and his men were overtaken by a storm, which compelled them to take shelter among a mass of shattered trees. The men attempted to reset a sail which had been blown from the yard by the fury of the wind and torn in tatters. The rain wet them to the skin, while the thunder crashing over their

heads rendered rest impossible. Towards night the wind subsided, but M. Biard did not venture to resume his journey until morning, when the sun shone forth again from a cloudless sky; and the sail being re-hoisted, with the wind favourable, he dropped downwards at a rapid rate, assisted by the current.

M. Biard tells us that he attempted to sleep, stretched on a mat, beneath the roof of his thatched cabin, but the heat made him restless. Several days passed by uneventfully. He was anxious to gain one of those white sandy beaches where a landing becomes possible; and was delighted when he caught sight of a distant line of white traced on the background of the sombre forests. Previously disembarkation had been impossible; the shores, laid bare by the recession of the waters, formed immense stages or terraces, composed of the different deposits left by the river on retiring. Whoever had planted his feet on these steps of liquid mud would have instantly disappeared, sinking to a great depth, without the possibility of receiving human assistance.

The Indian canoe-men plied their paddles vigorously, and M. Biard soon landed, followed by the

crew, who, without ceremony, roamed where they chose, in search of anything that might fall in their way. M. Biard, gun in hand, struck into the woods, but found the swampy soil a serious obstacle to his researches. On returning to the canoe, he learned that Polycarp, one of his Indians, had found a large number of the eggs of a kind of turtle which in the native language is called *tracaja*. These, unlike the eggs of the larger species, have a hard shell.

At some distance off M. Biard caught sight of a flight of large birds known as ciganas; but finding that he was separated from them by a creek, he re-embarked on board his canoe, and soon succeeded in securing a trophy. While engaged in reloading his gun, he saw a cayman gliding stealthily among the reeds. The prospect was not reassuring, and M. Biard hastily withdrew some steps, examining carefully if the creature had no companion ashore. When at a safe distance, M. Biard was preparing to take aim, but an Indian, who was busily killing turtle with long, iron-headed arrows, beckoned to him to look in the river. It was a long time before he could make out the object indicated; but after a while he saw a black

point, like a head, moving in the direction of the canoe, and apparently coming from an island about three miles off. At first M. Biard thought it was some native of the neighbouring island, bent on paying a visit to his compatriots. When he reflected on the distance he would have to swim, however, and on the impossibility that he could have seen the canoe, our Frenchman rejected this supposition. Yet, if he was not a man, what *was* he or *it?* The mystery was soon solved: the stranger proved to be a jaguar, and its fine head soon became distinctly visible. It speedily caught sight of the voyagers in its turn, but not until it had advanced so far as to render impossible its return to the opposite shore.

Unable to rely on Polycarp, who was a long way off, and busy with his turtle eggs, still less on any other of his men, M. Biard reserved the bullet he had intended for the cayman, and waited. His heart, he says, beat loudly; for he knew that it was a matter of life and death that he should hit the animal. Just as he took steady aim, the jaguar turned abruptly in the other direction. M. Biard began to run, so as to get right opposite his foe, and wait the moment of his landing. He

wished to get a point-blank shot, for greater certainty; but in executing this manœuvre he was "brought up" by the thorny bushes and prickly lianas. His feet were bare, and it was impossible for him to climb a hillock that was between him and the spot where he expected the jaguar would land. But suppose he disappeared! M. Biard resolved on hazarding a shot, and fired with all possible alacrity. That he was wounded, seemed evident from the way in which he lifted one of his feet to his head, rubbing his left ear, as a cat does. For a moment he was lost sight of; then he reappeared on the other side of the hillock, and plunged into the thickest shades of the wood.

Re-embarking in his canoe, M. Biard, while his men paddled along the muddy shore of a large island, set to work to prepare the birds he had killed. The cigana is about the size of a small hen; with plumage of a beautiful mauve-violet colour, its head ornamented with a tuft, its beak of a bright blue, and its eyes red.

On reaching the extreme point of the island, the voyagers, to their great delight, found there a fine sandy beach, and jumping into the water, proceeded

to moor the canoe. Then each indulged himself again, according to his taste, in hunting or fishing, until all were weary. The beach proved to be of great extent, and no wood could be discovered with which to kindle a fire and cook their turtle, except beyond a wide expanse of water. The men resolved to embark and drop down with the current, keeping close to the shore, and following M. Biard, who preferred to walk. Reaching in this way the extremity of the sand-bank, they were fortunate enough to come upon a portion of the shore raised high above the river, and covered with baobabs. The soil was stony; and the voyagers reached the summit of the ascent without losing their footing.

The Indians quickly lighted a huge fire. Then they proceeded to beat up their eggs, each man filling with them his calabash, that served alternately as plate and goblet. To the eggs they added a certain quantity of water, and thus formed a paste which they seemed to enjoy immensely. They had already treated after the same process the eggs of the tracaja; but, according to true Indian fashion, never dreamed of offering any to their employer. However, he had taken care of himself, and had

secured a dozen, which, roasted in the hot ashes, furnished a satisfactory meal.

The internal portions of the turtle made a capital *pot-au-feu;* and the plastron, with the flesh adhering to it, was roasted on a spit. Thus provided with food-supplies for several days, the voyagers continued their course down the Amazons.

Such is a leaf from M. Biard's "log-book;" and it serves to show the manner of life that is led by the adventurer who quits the dull routine of civilization for the romance, the freshness, and the novelty of Amazonian travel.

CHAPTER III.

FROM MANAOS, EASTWARD.

THE Madeira, another of the great tributaries of the Amazons, has two principal mouths, which are divided by an island, low and grassy at one extremity, and high and wooded at the other. It is the largest of the affluents. About four hundred and fifty miles inland occur a series of magnificent cascades or rapids, spreading over an extent of not less than three hundred and fifty miles. Above these falls large vessels can penetrate, by its tributaries the Beni and Mamoré, into the heart of Bolivia; and by the Guaporè or Itenes, into the rich Brazilian province of Matto Grosso. For a considerable part of its course, its banks are covered by the virgin forest.

Thirty miles below the Madeira we come to Serpa; a cluster of huts on a grassy promontory, round which the Amazons rolls with a sudden sweep.

The lake of Saracia lies behind it, and communicates with the river by two channels.

Passing over a hundred and fifty miles, Lieutenant Herndon brings us to Villa Nova da Rainha, which he describes as a long straggling village of one-story huts, situated in a little bend on the right bank of the Amazons, at an elevation above the sea of nine hundred and fifty-nine feet. It contains about two hundred inhabitants, and is the chief town of a district produ̇cing cocoa, coffee, and a few cattle. Considerable quantities of fish are caught and salted here for exportation. Just below it opens the mouth of the river Ramos, affording communication with the large village of Manés; round about which spreads a rich grazing plain, intersected by streams and channels of great depth. The fertile soil is well adapted to the cultivation of coffee, cocoa, cotton. Herds of cattle may find food in the luxuriant pastures; the rivers yield shoals of fish; the neighbouring woods produce almost inexhaustible supplies of cloves, cocoa, castanhas, caoutchouc, guaraná, sarsaparilla, and copaiba.

Passing the village of Parentins, situated on some high lands that mark the boundary between the provinces of Para and Amazonas, we enter a country



GATHERING FRUIT OF THE CACAO.

devoted to the cultivation of the cocoa-tree; and, at one hundred and five miles below Villa Nova, reach the town of Obidos.

During his sojourn here Herndon took a canoe to visit the *cacoaes*, or cocoa-plantations, in the neighbourhood. He stopped, he says, at the mouth of the Trombetas, which empties its waters into the Amazons by two mouths, only four or five miles above Obidos. The lower and smaller mouth is called Santa Teresa; the other, Boca de Trombetas. The river is said to be two miles wide, and productive of fish, castanhas, and sarsaparilla; but its navigation is obstructed by rocks and rapids. The country it traverses is so cut up with creeks, streams, and natural canals, as to be, literally, a world of waters.

Crossing the Amazons at this point, our American voyager found the bank lined for miles with cocoa-plantations, presenting a very charming spectacle. No prettier sight can be imagined than one of these plantations. The interlocked branches of the trees, with their large yellowish leaves, make an impenetrable shade. The level earth is covered with a soft carpeting of the fallen foliage; while brightness is secured by the quantities of golden-

coloured fruit hanging from bough and stem, and the birds of beautiful plumage which flit like spirits through the alleys.

On the occasion of Lieutenant Herndon's visit it was harvest-time, and the labourers were everywhere busy in breaking open the shells of the fruit, and exposing the seeds to the genial influence of the sun. An agreeable drink, called cacao wine, is procured by pressing out the gelatinous pulp in which these seeds are embedded. It has an acid taste, and is refreshing in hot weather.

The following particulars are condensed from Herndon's description of the cultivation of the cocoa-tree :—

The seed is planted in garden-beds in August. When the young shoots come up they are carefully watered, and protected from the sun's rays by boughs of palm. They are guarded also against the attacks of insects. In January they are removed to their permanent place, and "set out" in squares; plantains, Indian corn, or any quick-growing vegetable, being planted between the rows to defend them from the hot sun while in their youth. These are grubbed up when they begin to press upon the young trees, which, in good soil, will



DRYING THE CACAO.

bear fruit in three years, continuing productive for a man's lifetime.

They bud and fructify in October or November for the first crop; in February or March for the second. The summer harvest begins in January and February; the winter, which is the larger, in June and July. One crop is not off the trees before the blossoms of the second appear. The labour of a single slave is sufficient for two thousand fruit-bearing trees; but when they are young they require the attention of two. The trees are kept clean about the roots, and insects are carefully destroyed. But the ground is never cleared of its thick coating of dead leaves, which are suffered to decay, and serve as manure.

Obidos was visited by M. Agassiz and his wife, in the course of their exploration of the Amazons. They describe the scenes along the river-banks in its vicinity as recalling dreams of the old pastoral life of Arcady. Groups of Indians may be seen standing under the shade of the overarching trees, which are usually trained or purposely chosen to form a kind of arbour or green bower over the picturesquely rude landing-place and its canoes.

One or two hammocks are slung among the cool and leafy trees; the branches of which form a quaint framework to the thatched roof and walls of the little straw-built cottage behind. We may well believe, however, that pretty as the picture is, a closer examination would reveal many blurs and blotches; but this was unquestionably true of Arcady itself, and must not prevent us from admiring what is really admirable. Around each hut a little clearing has been made in the virgin forest, so that each has a background of dense and apparently impenetrable verdure. Each, too, stands in the midst of a little plantation of cocoa-trees, mingled with the mandioca shrub, the roots of which supply the Indians with their flour; and occasionally with the India-rubber tree—though the latter, as it grows plentifully in the forest, is but seldom cultivated.

It may be interesting to the reader to pay a visit to one of the better specimens of the Indian houses.

On one side is an open porch, in which is suspended a number of brightly-coloured hammocks. In the hot dry season it is pleasant and healthful to sleep in the open air. From this porch we enter by a wide straw, or rather palm-leaf, door, which is

put up and taken down like a mat, into a chamber of convenient size. An unglazed window, closed at will by a puku-leaf mat, admits the light. On the other side of the porch a second verandah-like room, also open to air and light, is apparently the theatre, so to speak, of the "domestic economy" of the family. There may be seen the great round oven, built of mud, where the farinha is dried, and the baskets of mandioca root stand ready to be picked and grated. There, too, is the long rough table at which the family take their meals. The whole interior has a pleasing aspect of cleanliness and decency: the mud-floors are swept as tidily as if Puck and his fairies had plied the cleansing brooms; and even outside a similar orderliness prevails. Below the house, under some pleasant trees, lies moored the Indian's canoe.

Such being an Indian's habitation, we may next consider what kind of life he lives in it, and how he occupies his time. Here, again, we may avail ourselves of the assistance of Madame Agassiz, who, with her husband, spent some months among the Indians of the Amazons.

She describes it as more attractive than the so-called civilization of the white settlements. Any-

thing more bald, dreary, and uninviting than life in the Amazonian towns, with some of the conventionalities and none of the graces of civilization, it is impossible to conceive. This morning, says our authority, my Indian friends have been showing me the various processes to which the mandioca is subjected. This plant is invaluable to the Indians. It furnishes them with their farinha, a coarse kind of flour, their only substitute for bread; their tapioca, and also a kind of fermented juice called tucupá. After being peeled, the mandioca roots are scraped on a very coarse grater; in this condition they are worked up into a moist paste, which is then packed in elastic straw tubes, made of the fibres of the jacitará palm. The tube has a loop at each end, and when full is suspended to the branch of a tree; through the lower loop a pole is passed, which is inserted into a hole in the trunk. The housewife then sits down on the other end of the pole, thus converting it into a kind of lever, and extending the tube to its utmost length by the pressure of her own weight. The juice pressed out in this primitive fashion flows into a bowl placed below the tube. It is poisonous at first, but fermentation renders it innocuous, and it is then used for making the

stimulating tucupá. The tapioca is obtained by mixing the grated mandioca with water; after which it is pressed in a sieve, and the fluid that percolates allowed to stand. A starch-like deposit is the result, which, when hardened, is cooked like porridge, and may justly be described as both pleasant and nutritious.

The name of the Indian host of M. Agassiz was Landigéri; that of his wife, Esperanza. Like all the Amazonian Indians, he was a fisherman; and, with the exception of the little work his plantation required, fishing was his only occupation. An Indian never assists in the labour of the house,—never fells wood or fetches water; and as the fishing is conducted only at certain seasons, it follows that, as a rule, he is an indolent fellow. On the other hand, the Indian women are said to be very industrious; perhaps, however, from necessity rather than choice. Esperanza, of whom we have here to speak, was, at all events, a model housewife. She was always engaged in some kind of domestic work; now grating mandioca, now drying farinha, now picking tobacco; and when those duties were discharged, cooking or sweeping. "Her children," writes Madame Agassiz, "were active and obedient; the

older ones making themselves useful in bringing water from the lake, in washing mandioca, or in taking care of the younger ones. Esperanza could hardly be called pretty, but she had a pleasant smile and a remarkably sweet voice, with a kind of childlike intonation, which was very winning; and when, sometimes, after her work was over, she put on her white chemise, falling loose from her brown shoulders, her dark skirt, and a rose or a sprig of white jessamine in her jetty hair, her personal appearance was by no means unattractive—though it must be confessed that the pipe which she was apt to smoke in the evening injured the general effect. Her husband looked somewhat sombre; but his occasional hearty laugh, and his enjoyment of a glass of *cachaca*, showed that he had his bright side."

A little distance above the mouth of the Tapajos, which is a mile and a half in width, lies Santarem, four hundred and sixty miles from the Rio Negro, and six hundred and fifty miles from the sea. It is pleasantly situated, and the country around it is both fertile and beautiful. The waters of the Tapajos, blue and tranquil, afford a striking contrast to

those of the main river. Birds of all kinds promenade its flowery banks, or perch among the branches of the trees that grow here and there in leafy clusters.

We have spoken of the tranquil waters of the Tapajos. This character of tranquillity, however, disappears as the traveller follows the river inland towards the diamond region of Matto Grosso; and he comes upon cataracts and rapids which convey a vivid idea of impetuous power.

Thus, M. de Lincourt says:—

"At the principal falls the river is no longer the calm Tapajos which slowly moves towards the Amazons, but the foaming Maranhão, the advance cataract of the deep and narrow *Caxociras das Fumas;* it is the roaring and terrible *Coata,* with currents crossing and recrossing, and dashing furiously against its black rocks.

"We surmounted all in the same day. Seated motionless in the middle of the canoe, I often closed my eyes to avoid seeing the dangers I escaped, or the perils that remained to be encountered.

"The Indians—sometimes rowing with their little oars, sometimes using their long iron-bound staffs, or towing the boat while swimming, or carry-

ing it on their shoulders—landed me at last on the other side of the *Caxociras*.

"On arriving at the foot of the fifth cataract, the Indians hesitated a moment, and then rowed for the shore. While some were employed in making a fire, and others in fastening the hammocks to the forest-trees, the hunter took his bow and two arrows, and such is the abundance which reigns in these countries that he returned a moment afterwards with fish and turtle.

"Exhausted with the day's labours, the Indians were unable to watch that night. I acted as sentinel, for these shores are infested by tigers and panthers. Walking along the beach to prevent sleep, I witnessed a singular spectacle, but one, as I was informed by the inhabitants, of frequent occurrence. An enormous tiger (jaguar) was stretched full length upon a rock level with the water, about forty paces distant. From time to time he struck the water with his tail, and at the same moment raised one of his fore paws and seized fish, often of an enormous size. These, deceived by the noise, and taking it for the fall of forest fruit, of which they are exceedingly fond, unsuspectingly approach, and soon fall into the traitor's claws. I had with



JAGUAR FISHING.

in the folds of the mountains; yet the general impression which the place produces belies its name. The soil consists of sand; the forest is low; and here and there wide swampy flats are covered with coarse grass. The pleasantest prospect in the immediate neighbourhood of the town is from the village churchyard, which lies enclosed within a fence, a large wooden cross in the centre, and smaller crosses marking several graves. At a little distance the hillside slopes abruptly, and from its brow the stranger looks across to the mountains which give the town its name. To the southward, the foreground is filled with lakes, divided from each other by low alluvial lands.

Crossing the river, here about four miles wide, we come to Prainha, a collection of huts on a grassy ascent, about ninety miles from Santarem.

Still continuing our course, we pass, at fifty-five miles from Prainha, the mouth of the Paru, the river broadening as we descend; at Gurupa, fifty-six miles from Prainha, it becomes a lagoon, not less than ten miles in width. The chief trade of Gurupa is in india-rubber.

The season for collecting seringa, or rubber, is from July to January. The tree always yields freely; but



SCENE ON THE AMAZON BELOW SANTAREM.

the work cannot be carried on when the river is full, as the whole country is then under water. The process is as follows:—A longitudinal gash is made in the bark of the tree with a very narrow hatchet or tomahawk; to keep the cut open a wedge of wood is inserted, and a small clay cup is attached to the trunk just beneath the fissure. A ring of cups may be placed all round the tree. In four or five hours the milk has ceased to run, each gash or orifice yielding from three to five table-spoonfuls. The gatherer then collects it from the cups, pours it into an earthen vessel, and begins the operation of shaping and smoking it. This must be done at once, as the milk soon coagulates.

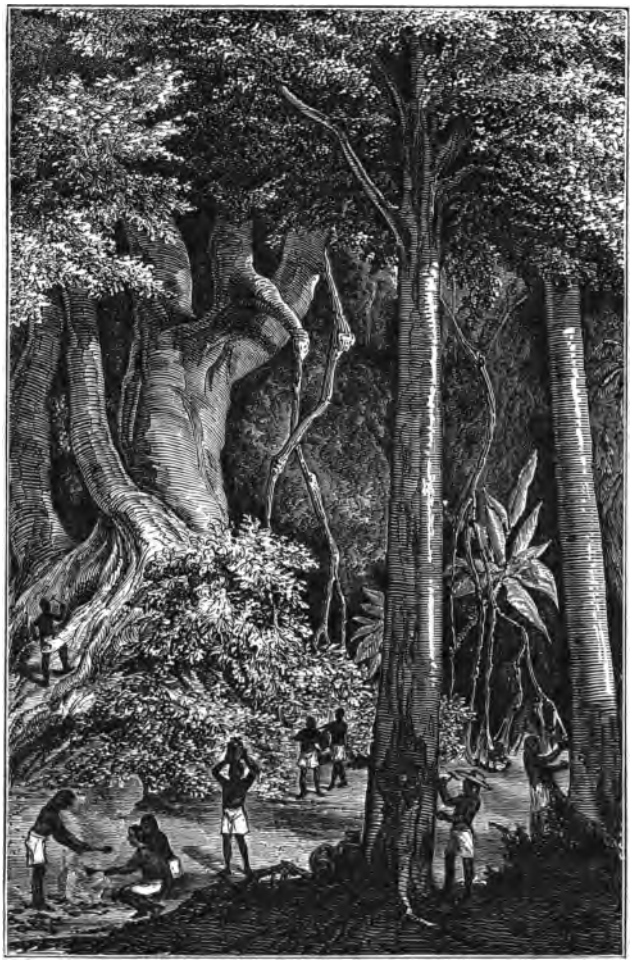
A fire is soon kindled of the seeds of palm-nuts, of which there are two kinds—one called *urucari*, the size of a pigeon's egg, but longer; the other, and smaller, called *inajá*. An earthen pot, with the bottom knocked out, is placed, mouth down, over the fire; and up through this miniature kiln ascends from the seeds a strong and pungent smoke. The operative now takes his last, if he is making shoes, or his mould, which is fastened to the end of a stick; pours the milk over it with a cup, and passes it slowly several times through the smoke

until it is dry. He then pours on another, and yet another coat, until the required thickness is obtained, smoking each layer until it is quite dry.

The moulds may be made either of wood or clay; those of wood being smeared with clay, to prevent the milk from adhering. When the requisite thickness has been secured, the moulds are either cut or washed out of the india-rubber. In commerce, as many of our readers will know, the usual form assumed by india-rubber is that of a thick bottle. But it is also frequently made in thick sheets, by pouring the milk over a wooden mould, shaped like a spade; and, when thick enough, slipping a knife round three sides of it, and removing the mould.

The name *seringa*, locally given to india-rubber, is from the Portuguese, and means a syringe; it was in this form only that the first Portuguese settlers found the rubber employed by the natives—who, it is said, were taught to make syringes of it by seeing the natural tubes which the spontaneously-flowing sap shaped round projecting twigs.

The *Siphonia elastica*, or india-rubber tree, grows only on the lowlands, in wild and swampy districts of the Amazons region, and along the banks of the Tapajos, the Madeira, the Jurua, and Javari. In



COLLECTING INDIA-RUBBER.

bark and foliage it bears some resemblance to an English ash; but the trunk, like all the trees of the virgin forest, rises to an immense height before throwing off branches.

The Amazons now ceases to be a river. As Agassiz says, it becomes a sea of fresh water, in which the current is hardly perceptible to the sight, and resembles rather the equable, measured, and regular flow of an ocean than that of an inland stream. The voyager finds himself sailing between shores, it is true; but they are the shores, not of the river itself, but of the almost countless islands scattered over its vast expanse. Very beautiful are these "island Edens," blooming with fresh verdure, and luxuriant in the fantastic forms of tropical vegetation. Conspicuous above all their greenery rises, with the grace of a shapely Corinthian column, the lofty but slender assai-palm, with its crown of light plume-like leaves, and its clusters of berry-like fruit, drooping from a branch that shoots out, almost horizontally, just beneath the wavy foliage. The dense leafy masses convey, as forest-scenery always does, the idea of solitude; and yet yonder fairy shores are not entirely solitary. Houses are studded

here and there,—houses picturesque enough, with their high, thatched, overhanging roofs, to obtain a place in an artist's sketch-book.

In passing through the island-labyrinth, we enter a channel known as the river Atuiva. It gives a vivid idea of the might and majesty of the Amazons, that even the channels dividing the islands which break the monotony of its immense estuary are in themselves so many copious rivers, and generally known by distinct names. Here the number and variety of the palms attract our attention. As, for instance, the mauritia, with drooping bunches of reddish fruit, and wide-spreading fan-like leaves severed into ribbon-like sections, each of which is a burden for a man; the rhaphia, with feathery leaves, sometimes forty to fifty feet long, a comparatively short trunk, and graceful vase-like outline; the manicaria, with stiff unbroken leaves, thirty feet long, their edges indented like the edge of a saw. Moreover, the river-banks are fenced in with long lines of hedges, composed of the aninga (an arum), with large heart-shaped leaves, flourishing on the top of tall stems; and the miarici, a lower growth, rising from the very edge of the water.

The character of the scenery on the river-bank



AN ARCHIPELAGO IN THE LOWER AMAZON.

may be gathered from the following description by Madame Agassiz:—

An Indian invited her and her companions to visit his house, which was situated, he said, in the forest, at no great distance. They readily complied, for the path he pointed out looked very attractive, as it wound afar into the verdurous gloom. Under his guidance they proceeded, every now and then crossing a forest-creek on the logs laid down to serve as a causeway. Seeing that Madame Agassiz was rather timid, the Indian cut for her a long pole, which proved of great assistance. But at last they came to a place where the water was so deep that Madame Agassiz could not reach the bottom with her pole, and as the round log that served as bridge rolled very unsteadily, she feared to cross. In her imperfect Portuguese she owned her timidity. "Nai, mia branca" (No, my white), the Indian said, reassuringly; "naó tun modo" (do not be afraid). Then, as if a thought struck him, he motioned her to wait; and running a few steps up the creek, unloosed his boat, brought it down to the spot where the little company stood, and paddled them across to the opposite shore. Just beyond lay his charmingly picturesque hut or house, where he

showed his dusky children with true paternal pride, and introduced Madame Agassiz to his dusky wife. These people display a natural courteousness of manner which is very agreeable, and is said to be a general characteristic of the Amazonian Indians.

When Madame Agassiz took leave of them, and returned to the canoe, she supposed her guide would simply put her across to the opposite bank, a distance of a few feet only, as he had done in coming. But, on the contrary, he headed the canoe up the creek, and into the heart of the wood. Never was excursion more enchanting! The canoe glided along the narrow water-way, which was overarched by a solid dome of verdure, and black with shadows. Yet it was not gloomy, for outside the sun was setting in crimson and gold, and its last beams, slanting under the boughs, lighted up the interior of the forest with an almost supernatural glow.

Returning to Lieutenant Herndon's voyage, we find that he made his way through the island-studded estuary, and its labyrinthine channels, to the bay of Limoeiro, a deep indentation on the right bank, into which the river Tocantins pours its waters. Thirty-nine miles above the river-mouth stands the



SCENE NEAR PARA.

town of Cameta, in a district famous for its cultivation of mandioc, cocoa, cotton, rice, tobacco, urucú, and sugar-cane. Crossing the bay, the American voyager proceeded to navigate the Moju, a fine stream, which brought him into the Guajarú; and thence he descended to Para, or Santa Maria de Belem do Grao Para, which is situated about eighty miles from the sea. The river Para forms the southern arm of the Amazons estuary, and is separated from the northern arm by the considerable island of Marajo.

According to Herndon, Para is an agreeable place of residence, with a delightful climate. The sun is hot till about noon, when the sea-breeze comes in with rain, thunder, and lightning, after which the latter part of the day is delicious. It has a fine harbour, accessible to ships of almost any burden; and some good buildings, including the palace, the cathedral, two convents, and several churches.

Mr. Bates speaks of the appearance of the city as pleasing in the highest degree. It is built on a low tract of land, which rises into a rocky elevation at its southern extremity. From the river, therefore, it affords no amphitheatral view; but the white buildings, roofed with red tiles, the numerous towers

and cupolas of the churches and convents, the crowns of palm-trees rising above the buildings, all sharply defined against the clear blue sky, give a character of lightness and cheerfulness which is peculiarly attractive. The perpetual forest surrounds the city on all sides landwards; and towards the suburbs, picturesque country-houses nestle among the luxuriant foliage.

But the great charm of Para is "the overpowering beauty of the vegetation." The massive dark crowns of shady mangoes are visible everywhere amongst the dwellings, amidst fragrant blossoming orange, lemon, and many other tropical fruit-trees; some in flower, others in fruit, at varying stages of ripeness. Here and there, the smooth pillar-like stems of feathery palms tower above the more "dome-like and sombre trees." The shapely slender assai, in groups of four or five, is specially noticeable; its smooth, gently curving stem, twenty to thirty feet high, crowned by a head of feathery foliage, remarkably graceful and light in outline. Tufts of strange-leaved parasites enrich the boughs of the taller and more ordinary-looking trees; which are knitted together by festoons of woody lianas, while their trunks are almost hidden in profuse parasitical growth. The



THE BANANA TREE.

magnificent banana (*Musa paradisiaca*) thrives most vigorously; its shining velvety green leaves, twelve feet long, suggesting ideas of grace and beauty. The shape of the leaves, says Bates, the varying shades of green which they present when lightly moved by the wind, and especially the contrast they afford in colour and form to the more sombre hues and more rounded outlines of the other trees, are quite sufficient to account for the charms of the banana. But at every step strange or beautiful forms of vegetation are met with. Amongst them, the bread-fruit tree, with its large, glossy, dark-green, strongly-digitated foliage; and the different kinds of bromelia, or pine-apple plants, with their long, rigid, sword-shaped leaves, sometimes jagged or toothed along the edges.

Electric eels abound in the creeks, pools, and channels about Para. The largest seen by Mr. Herndon was about five feet in length, and four inches in diameter. Their shock, though unpleasant, is not absolutely painful; but some persons are more affected by it than others. The mode of capturing these eels by horses is described by Humboldt in a well-known passage. To catch them with nets is, he says, very difficult, for their agility is remarkable,

and they bury themselves in the sand like serpents. The barbasco is sometimes used; but the favourite Indian mode of capture is "embarbascur con cavallos," or to fish with horses.

A drove of horses is forced into a pool frequented by the gymnoti, which are roused to combat by the noise of the horses' hoofs. Swimming on the surface of the water, like large aquatic serpents, livid and yellow, they swarm under the bellies of the horses and mules. Meantime the Indians, equipped with harpoons and long slender reeds, surround the pool closely, or climb upon the trees which project their branches over it. By their wild shouts, and by freely using their pointed reeds, they prevent the horses from escaping to the bank of the pool.

Stunned by the clamour, the eels defend themselves by repeated discharges of their electric force. Several horses sink beneath their violence, and disappear under the water. Others, panting, with mane erect and haggard eyes, make frantic efforts to escape from the attacks of their enemies; and though driven back by the Indians, some succeed in regaining the shore, when, stumbling at every step, exhausted with fatigue, and benumbed with pain,

they stretch themselves upon the sand. In less than five minutes a couple of horses are drowned. The eel, pressing its whole length against the belly of the horse, pours forth the full violence of its electric organ, attacking simultaneously all the most essential and vital organs. It is natural, therefore, that the effect should be more powerful than that produced upon a man, by the touch of the same fish at only one of his extremities. Probably the horses are not killed, but only stunned. They are drowned, from the impossibility of rising amid the furious and protracted struggle between the other horses and the eels.

Humboldt says that he had little doubt that the fishing would terminate by killing, successively, all the animals engaged; but by degrees the impetuosity of the unequal combat diminished, and the wearied eels retired, to repair, by a long rest, and by abundant refreshment, their loss of galvanic force. The mules and horses showed less apprehension. The eels timidly approached the edge of the pool, where they were taken by means of small harpoons attached to long cords. When these cords are very dry, the Indians experience no shock in raising the fish into the air.

With respect to Para itself, it may be added that its shops are well supplied with English, French, and American goods. The groceries are mostly imported from Portugal. The warehouses are piled with heaps of india-rubber, nuts, hides, and baskets of annatto. The last-named pigment is made from the seed of a burr, which grows on the urucú bush, as it is called in Brazil, or the achote, as it is named in Peru. In the latter country it grows wild and in great abundance; in the former, it is cultivated. The tree, or bush, grows to ten or fifteen feet in height, and yields its first crop in eighteen months.

Having thus completed the exploration of the Amazons from its source to its mouth, we proceed, in our concluding chapter, to describe some of the more interesting animals and plants which are found in its virgin forests.

CHAPTER IV.

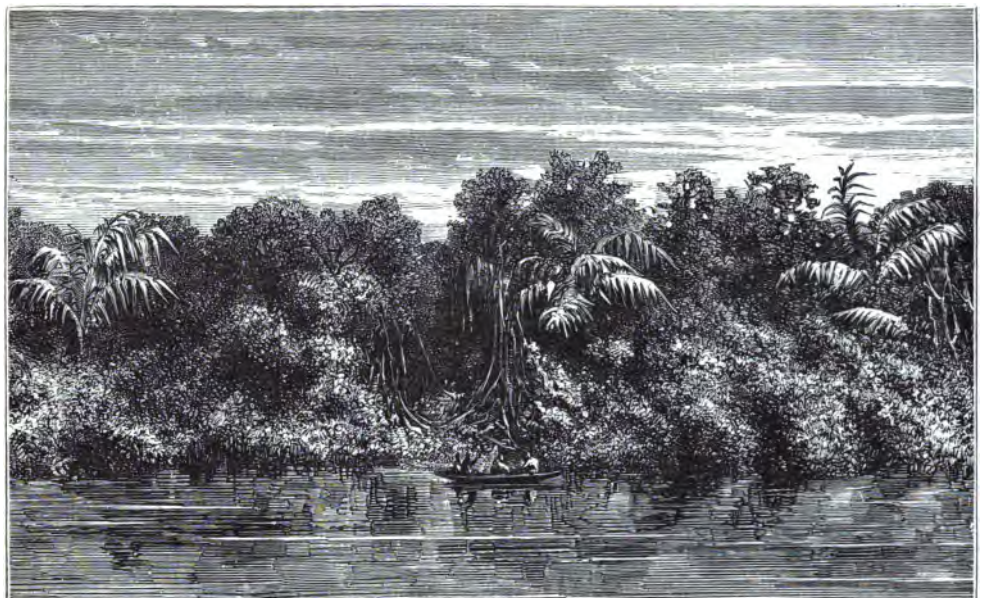
IN THE VIRGIN FOREST.

NATURE has been very bountiful to the Amazonian valley. On either side of the great river spread immense forests, abounding in trees and fruits, and in animal-life, the depths of which have never been penetrated by human foot. It is only the tracts lying near the river-banks, or along the creeks and streams forming so extraordinary a world of waters, that the traveller or the native has explored. But limited as is their extent, compared with the total area of the wilderness, they supply an apparently inexhaustible material for the researches of the naturalist and the botanist; while the artist need never be at a loss for beautiful landscapes to transfer to his sketch-book.

The trees of the virgin forest are lofty and of great variety, including some gigantic specimens of the Brazil-nut tree (*Bertholletia excelsa*), and the

pikiá. The latter bears a large edible fruit, remarkable for the hollow chamber between the pulp and the kernel, which is studded with hard spines capable of inflicting serious wounds. The eatable part has much the flavour of a raw potato; but the Mestizos are so partial to it that they will walk miles to gather it for breakfast, as English children do to pick nuts or blackberries. Another tree of frequent occurrence is the tonka-bean (*Dipterix odorata*), which is largely used in Europe for scenting snuff. The odour is not unlike that of new-mown hay. This tree grows to a height of eighty feet; the fruit is shaped like an almond, but is much longer.

The diversity of trees and shrubs, either distinguished by the curiousness of their fruit, or by the splendour of their foliage and bloom, is almost endless. The observer is for ever meeting with something to interest or surprise him. Mr. Bates was much struck by the numerous trees with large and differently-shaped fruits growing out of trunk and branches, some within a few feet of the ground, like the cacao. They are mostly of inconsiderable stature, and the Indians call them cupú. One of them, cupú-aï, bears an elliptically-shaped fruit, of a dull earthy colour, and six or seven inches long, the



THE VIRGIN FOREST.

shell of which is thin and woody, and contains a small number of seeds loosely enveloped in an agreeable juicy pulp. The fruits hang like "clayey ants' nests" from the branches. Then there is a kind not unlike the cacao; with a green ribbed husk, and resembling a cucumber in shape. The Indians have named it *cacao de macau*, or "monkey's chocolate;" but the beverage obtained from its seeds is of indifferent flavour, and a dingy yellowish colour. However, they beat up into an excellent paste, and furnish an oil like that of the ordinary cacao-nut in smell.

Animal-life is neither less plentiful nor less interesting than vegetable-life in this wonderful region. Sometimes, says Mr. Bates, a troop of glossy, black-plumaged anús (*Crotophaga*), which live in small societies in the grassy campos, may be seen entering the forest one by one, and, as they move to and fro, calling each other with monotonous cry. Or a beautiful toucan, one of the most resplendent members of the bird-world, hops or runs along the branches, seeking its insect-food in every chink and crevice. Or a trogon, with shining emerald back and breast of rosy bloom, will perch

on a low bough, and abandon itself to meditation. When the dead leaves lie in heaps, the jacuarú lizards (*Teius teguexim*), two feet long, may be heard scampering in apparent pursuit of one another, like kittens at play. The natives set a high value on the feet of this large lizard, and employ them in a poultice to draw thorns or even grains of shot from the flesh. Other lizards there are, laidly of aspect, and fully three feet in length, swimming and splashing in every woodland pool, or, at the stranger's approach, crouching into hollow trees for shelter. The air of this forest solitude—for a solitude it mostly is, so far as man is concerned—echoes with various sounds: with the "lazy, flapping flight" of large blue and black mapho butterflies; the hum of smaller insects on their restless wing; the love-calls of birds, and the clatter or plash of heavy fruits as they drop upon the ground or into pool or stream. We do not feel the breeze below, for a dense canopy of verdure stretches over us; but it stirs in the topmost branches, and sets in motion the wreaths, festoons, and garlands of the lianas and aerial plants.

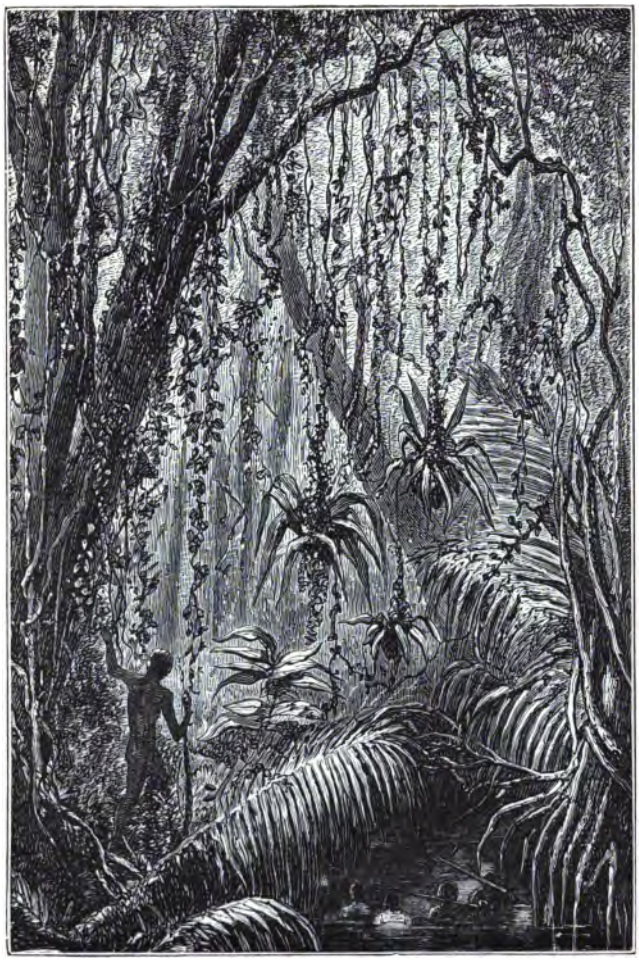
Mr. Edwards furnishes a glowing picture of the

primeval forest. He speaks of the immense girth of the trees, with their trunks of every variety of form—round, angular, and sometimes resembling an open network, through which the light passes in any direction. Round them cling large snake-like vines, twisting round and round the trunks, and sending their long arms up even to the loftier branches. Sometimes they throw down long feelers, which swing in mid-air until they reach the ground, where, taking root, they in their turn fling out arms that grapple to the nearest support. In this way the whole forest is interlaced, so that a tree seldom falls without involving others in its ruin.

"Around the tree trunks," says Mr. Edwards, "clasp those curious anomalies, parasitic plants, sometimes throwing down long slender roots to the ground, but generally deriving sustenance only from the tree itself and from the air—called hence, appropriately enough, air-plants. These are in vast numbers and of every form, now resembling lilies, now grasses or other familiar plants. Often a dozen varieties cluster upon a single tree. Towards the close of the rainy season they are in blossom, and their exquisite appearance, as they encircle the mossy and leafed trunk with flowers of every hue, can

scarcely be imagined. At this period, too, vast numbers of trees add their tribute of beauty, and the flower-domed forest from its many-coloured altars ever sends heavenward worshipful incense. Nor is this wild luxuriance unseen or unenlivened. Monkeys are frolicking through festooned bowers, or chasing in revelry over the wood arches. Squirrels scamper in ecstacy from limb to limb, unable to contain themselves for joyousness. Coatis are gambolling among the fallen leaves, or vying with monkeys in nimble climbing. Pacas and agoutis chase wildly about, ready to scud away at the least noise. The sloth, enlivened by the general inspiration, climbs more rapidly over the branches, and seeks a spot where, in quiet and repose, he may rest himself. The exquisite tiny deer, scarcely larger than a lamb, snuffs exultingly the air, and bounds fearlessly, knowing that he has no enemy here."

But it is its birds that lend the greatest charm and variety to the forest. Clothed in gorgeous plumage, they are above and around you,—here, there, and everywhere. The fruitful trees afford a rich harvest to the toucan, who expresses his satisfaction by his reiterated cry of *tucáno, tucáno.*



AIR-PLANTS.

With quiet repetition the motmot utters his name. Fairy creatures with dazzling wings flit through the maze of lianas and parasites. In a moment's interval of silence the tapping of the woodpecker is heard far away. Tiny creepers, as gaily attired as elfin pages, run up the smooth green trunks, and peer and pry in every cranny for their insect-food. In alternate songs, pairs of warbling thrushes are making love or telling of the day's adventures. To the chatter of noisy parrots replies the scream of noisier parroquets. Bright pheasants go whirring by; and wood-pigeons, delicate and beautiful, rise high above the woodland tops. And, loveliest of all, those winged jewels—those "kiss-flowers," as the Brazilians term them—the humming-birds, with wings of light and flame, now flash past in pursuit of some humble-bee, or pause an instant to sip the nectared sweets of some expanded blossom.

Night in the forest presents a very different scene. The song-birds have gone to rest; the day-flowers have closed their petals, and ceased to pour abroad their liberal fragrance. But a fresh perfume fills the air, rising freely from blossoms which refuse to open their bosoms to the ardent sun. The

echoes repeat in gentlest tones a gentle murmur. Through the high canopy of foliage the moonbeams find an occasional passage; but the fitful light serves only to make darker the surrounding darkness. The butterflies are no longer visible, but in their place huge moths flutter to and fro; and myriads of fire-flies weave in and out of their fantastic dance. Now up the glades comes, like a streaming meteor, a steady, increasing light, which whizzes past, reflecting its rays in the dewy prisms that lie on every leaf. This is the lantern-fly, carrying its love-signal upon its head. From its burrow sleepily crawls the armadillo, to roam abroad in search of food; the ant-eater has set forth on its marauding expedition; and up the tall tree the opossum warily climbs.

We have referred to those dainty elves, the humming-birds. They have often been described, but never perhaps with keener appreciation than by Mr. Edwards. His glowing words seem to bring before us the forest shade, lighted up by the richly-coloured plumage of their fairy forms. Wherever, he says, a creeping vine opens its fragrant clusters, or wherever a tree-flower blooms, they may be found. They are darting about everywhere; of all



HUMMING-BIRDS.

sizes—from one that might easily be mistaken for a different variety of bird, to the tiny hermit, whose body is not half as big as that of the bee which plunders the same flower. "Sometimes they are seen chasing each other in sport with a rapidity of flight and intricacy of path the eye is puzzled to follow. Again, circling round and round, they rise high in mid-air, then dart off like light to some distant attraction. Perched upon a little limb, they smooth their plumes, and seem to delight in their dazzling hues; then starting off leisurely, they skim along, stopping capriciously to kiss the coquetting flowerets. Often two meet in mid-air and furiously fight, their crests and the feathers upon their throats all erected and blazing, and altogether pictures of the most violent rage. Several times we saw them battling with large black bees who frequent the same flowers, and may be supposed often to interfere provokingly. Like lightning our little heroes would come down, but the coat of shining mail would ward off their furious strokes. Again and again would they renew the attack, until their anger had expended itself by its own fury, or until the apathetic bee, once roused, had put forth powers that drove the invader from the field."

Among the interesting forms of animal-life in the Amazonian forest, not the least interesting is the sloth. Mr. Bates had an opportunity of watching the movements of the species known as *Bradypus tridactylus*, the three-toed; the *Aï ybyretá* of the Indians—that is, "sloth of the mainland." Some travellers in South America have represented it as anything but the type of laziness which it is proverbially considered; the Indians, however, hold to the vulgar opinion. It is not uncommon for one native to reproach another as being a "biche de Embaüba," or beast of the cecropia-tree—that is, a sloth, for it is on the leaves of the cecropia that the sloth feeds. Strange is it to see the uncouth creature moving slowly from branch to branch of the interwoven forest. His motions indicate caution, perhaps, rather than indolence. He never looses his hold from a branch until he has first obtained a good grasp upon another; and when he does not immediately find a bough to clutch with the rigid hooks into which his paws are so providently transformed, he raises his body, supporting it on his hind limbs, and searches for a fresh foothold.

A remarkable feature of the Amazonian forest is

its colossal trees, to the description of which we must devote a few words. Among the more remarkable are the lofty *Lecythis ollaria*, or sapucaya, easily recognizable by the numerous large empty wooden shells always lying on the ground at its base. These are the so-called *cuyas de macaco*, or "monkey's drinking-cups;" and form the capsules or outer husks of the nuts sold under this name at Covent Garden. The top of the vessel has a circular aperture, to which a natural lid is neatly fitted. When the nut ripens this lid becomes loose, and eventually the heavy cup falls to the ground with a crash and a clang, scattering its fruit far and wide. Other trees there are, the trunks of which measure from twenty to twenty-five feet in circumference; others, from fifty to sixty feet, while they are fully one hundred feet high from the ground to the lowest branch. The total height of such trees as the *Cratæva tapia* and *Symphonia coccinea* may be estimated at from one hundred and eighty to two hundred feet.

A peculiarity of these forest-giants is the growth of buttress-shaped projections round the lower part of their trunks. The spaces between these buttresses, which may be likened to walls of wood, can

accommodate half a dozen persons. It is, of course, not difficult to understand their value, for they are as essential to the support of the huge forest-trees as stone buttresses to the support of an embankment of masonry. And hence they are found attached to most of the Brobdingnagian wonders of the virgin forest, and not confined to a single species.

Their nature, as well as their mode of growth, is readily understood upon examining a series of young trees of different ages. It is then seen that they are the *roots* which, ridge-like, have lifted themselves out of the earth; gradually growing upwards as the increasing height of the tree rendered necessary additional support.

A remarkable tree, apart from its colossal stature, is the massaranduba, or cow-tree, which produces from its bark a copious supply of lacteal fluid, as good and pleasant to drink as the milk of the cow. In Para the fruit of this tree is sold by the negro market-woman; and it is much relished by the natives. The timber is also esteemed for its durable qualities. The tree is one of the largest of the forest-monarchs, and has a peculiar appearance on account of its deeply-scored and rugged bark; a decoction of which, by the way, is used as a red dye



THE COW-TREE.

for cloth. To obtain the "milk," it is not necessary to go to the growing tree; it can be drawn even from dry logs which have been lying for days in the heat of the sun at the saw-mills. With coffee it is agreeable enough; but when drunk pure, has a slight rankness of flavour. It soon thickens into a glue, which is excessively tenacious, and of great utility as a cement for broken crockery. It is said to be dangerous to drink the milk in any large quantity.

The reader accustomed to the blooming beauty of our English woodlands, where violets and "wind-flowers tall" and daisies deck the sward, and where the hawthorn in early summer takes on its masses of delicate bloom, will be surprised to learn that in the virgin forest of the Amazons flowers are comparatively rare. The majority of the trees have only small and inconspicuous flowers. In the open campos, however, flowering trees and bushes are of frequent occurrence. The forest bees feed upon the sweet sap which exudes from the bark of trees, or on the excrements which the birds deposit on the leaves, rather than upon the "honied sweets" of blossoms.

The traveller, penetrating into the wooded depths,

cannot fail to be impressed by their silence, their profound gloom. The impression deepens as he carries his researches further and further. The few sounds of birds are never cheery and vivacious, like those of our own "sylvan choristers," but partake of a pensive or mysterious character, which adds to the traveller's feeling of melancholy rather than relieves it. Sometimes the silence is broken by a sudden scream or yell, proceeding from some defenceless fruit-eating animal when pounced upon by a tiger-cat or stealthy boa-constrictor. Morning and evening the echoes are rent by the fearful and harrowing noise of the howling monkeys, under which not even a Mark Tapley could maintain his buoyancy of spirit. So fearful an uproar necessarily increases tenfold that sentiment of the inhospitality of Nature which the apparently interminable forest is so well fitted to awaken. Often, even in the tranquillity of noon, some huge tree or mighty limb falls to the ground with a crash which resounds throughout the wilderness. Other sounds there are, for which the traveller finds himself unable to account, which even the natives are unable to explain—sounds as cëry as those described by Keats, "swooning over dreary moors." Now it is like the clang



FIGHT BETWEEN A JAGUAR AND AN ANT-EATER.

of an iron bar against a hard, hollow tree—now like the cry of a child in agony; but to these the deep, sullen silence invariably succeeds, and the traveller feels a gloomier mood than ever. These inexplicable noises are attributed by the native, like all else that he cannot understand, to the *Curupóra*, or "wild man of the forest,"—a singular spirit truly, with powers which vary according to locality. Sometimes he is described as a kind of orang-outang, living an arboreal life, and clothed in long shaggy hair; at others he is furnished with a bright red face and cloven feet. He has, it is said, a wife and children, and occasionally makes a raid into the cultivated districts to steal the mandioca.

Among the plumaged denizens of the forest we may specially direct attention to the toucans. Five species of this extraordinary family—famous for the great size and light structure of their beaks—are found in the vicinity of Ega. The commonest is the co-called Cuvier's toucan—a large bird, with caudal feathers of a saffron hue. It deposits its eggs in the holes of trees, at a considerable height above the ground; and during the greater part of the year it is found alone, or in small flocks of four or five,



A PAIR OF TOUCANS.

which for hours together will sit perched among the topmost branches of the high trees. There the feathered company indulge in a loud, shrill, yelp-like choral strain; one bird, perched higher than the rest, acting apparently as leader or

precentor—though two are sometimes heard in antiphonal exercise, and insisting upon different notes. The Indian name for this genus is derived from the vague resemblance of these cries to the syllables *To-cá-no! to-cá-no!* When they are thus engaged, the sportsman finds it difficult to secure a shot at them: they are so acute and wary that they catch sight of the intruder before he reaches their place of assembly, though he may be half-hidden among the dense undergrowth, and one hundred and fifty feet below their aerial perch. They crane their necks to look beneath; and the lightest agitation of the foliage suffices to frighten them away to less accessible parts of the forest.

The reader may ask, What is the use of the toucan's colossal bill, which in some species is seven inches long and two inches wide, and might be thought an intolerable burden for it?

The earlier naturalists, having seen only a toucan's bill, which in the sixteenth and seventeenth centuries was regarded as a natural curiosity, came to the conclusion that its owner belonged to the web-footed birds, distinguished by so many curious developments of the bill adapted for taking fish; and fabulous stories were told by travellers in confirmation

of this hypothesis,—stories of toucans resorting to the river-banks to obtain their finny food. Toucans, however, lead a strictly arboreal life, and belong to the *Capitoninæ* group, all the members of which are fruit-eaters. They are very common in the Amazonian region; but no one has ever seen them walking on the ground, much less diving, wading, or swimming. Fruit is undoubtedly their chief food; and inquiry has shown that their large beak is ingeniously adapted for securing it. Its size, says Mr. Bates, enables the bird to reach and devour fruit while remaining seated, and thus counterbalances the disadvantage which its heavy body would form in the competition with allied groups of birds. The relation between its abnormally long bill and its mode of obtaining food, is exactly similar to that between the long neck and lips of the giraffe and its mode of browsing.

The most curious species is the curl-crested toucan. The feathers on the head of this remarkable bird are transformed into thin horny plates, of a lustrous black colour, curled up at the ends like shavings of ebony wood, and arranged over the head in the shape of a wig. This bird makes its appearance in the forest in the months of May and June,

after its moulting is completed, and it is always found in large flocks. These do not seem to assemble among the fruit-trees, but to wander freely through the forest, half-hidden by the density of the foliage. Mr. Bates describes an amusing adventure which befell him with these curl-crested toucans. He had brought down one from a tree of some height in a dark forest-glen, and had entered the thicket into which it had fallen in order to secure it. The bird proved to be only wounded, and, when Mr. Bates attempted to seize it, uttered a loud scream. Immediately, as if by magic, the shady nook seemed alive with birds, though Mr. Bates had seen none on first penetrating into the jungle. They descended towards him, flapping their wings and hopping from bough to bough; some of them swinging on the loops and festoons of the woody lianas, and all giving abundant evidence of ungovernable fury. After seizing his victim, our naturalist made preparations for obtaining new specimens and punishing the feathered viragoes for their audacity; but, the screaming of their comrade having terminated, they reascended among the leafy branches, and suddenly disappeared.

Mr. Edwards, in describing the woods round about

Barra or Manaos, enumerates a variety of birds which all belong to the virgin forest of the Amazons.

Thus he speaks of cuckoos of several species, with plumage glancing red in the sunshine, which flitted noiselessly through the branches in search of grubs, their favourite food; of purple jays, assembling in large flocks, and chattering and gesticulating on some favourite fruit-tree; of motmots, and lively little chatterers; and of goatsuckers, clothed in beautifully-coloured plumage; of mannikins, in great variety and in every bush; of tanagers whistling aloud, and warblers faintly lisping their notes in the leafy trees. He speaks, too, of flycatchers, in endless variety, moving nimbly over the branches, or sallying out from their sentry stations upon their passing prey. Pigeons might be heard cooing in the thicket; tinami of all sizes fed along the path, or sported in parties of half a dozen among the dry leaves. Curassows moved on with stately step, picking up here and there some dainty morsel, and uttering a loud peeping cry, or ran with outstretched neck and rapid strides at the slightest sign of danger. Guans in twos and threes stripped the fruits from the low trees, betraying their locality by their constant repetition of a loud harsh note.

Of all these birds, the trogons ranked next to the chatterers in beauty. There were half a dozen varieties, differing in size, from the trogon viridis, not larger than our common sparrow, to the curuqua grande (*Callurus auriceps*), which is twice as big as a jay. All had long, spreading tails, bright with many colours, and thick close plumage, which made them appear of greater size than they were in reality. The trogons are solitary



A PAIR OF TROGONS.

birds, and early in the morning or late in the afternoon may be observed sitting,—singly or in pairs, some species upon the tallest trees and others but a few feet above the ground,—with tails outspread and drooping, on the watch for passing insects. Their appetites satisfied, says Mr. Edwards, they spend the rest of the day in the shade, uttering at intervals a melancholy note, which has been syllabled as *cu-ru-qua*. This would betray them to the hunter, but for their ventriloqual skill, which they exercise in such a manner as utterly to delude and confound him. The species vary in colouring as in size; but all of them shine on the upper parts with a lustrous green or blue, and on the under with bright red or pink or yellow.

The same naturalist tells us that the curassows are all familiar birds, which will readily allow themselves to be caressed. At night they frequently come into the house to roost; and apparently they are partial to the company of the parrots and other birds. When thus domesticated, they might easily be bred; but they abound in such numbers, and their nests are so easily found, that it is not worth while. They feed upon seeds and fruit, and are esteemed superior, for the table, to any game of the country.

But the virgin forest has also its plagues and scourges: its legions of flies, mosquitoes, and ants, which are a constant source of annoyance, and even pain, to the traveller. It has also its fierce and cunning jaguar, the tiger of South America; and, as we have seen, its lakes and rivers are infested by the formidable cayman. It has its snakes and serpents; and among the latter, the jararáca (*Craspido aphalus*) is far more dreaded by the Indians than cayman or alligator. The colours of its body so exactly resemble those of the fallen leaves among which it lurks, that it is difficult to distinguish it until your feet are right upon its body. Then it rears aloft its hideous, flat, triangular head, connected with the body by a thin neck, and prepares to attack its victim. Its bite is generally fatal. It makes no attempt to spring, but lies coiled up, waiting for an opportunity to sting some heedless animal that approaches its hiding-place.

No other reptile is equally formidable, except the sunnujù, or water-boa, which sometimes does not hesitate to attack even man.

Something should be said about the wasps, which

inhabit almost every part of the forest. As, for instance, the sand-wasps, the habits of which are well worth the attention of the naturalist. Their place of work is easily known by the numerous tiny jets of sand projected over the surface of the sloping bank. The little miners excavate with their fore feet, which are stoutly made, and supplied with a fringe of stiff bristles. The rate at which they execute their task is wonderful; and the sand thrown out beneath their bodies forms a continuous flow. They are solitary wasps,—each, like Harry of the Wynd, in Scott's novel, working for her own hand. After digging out a slanting gallery two or three inches in length, the owner backs out, and goes round the entrance, as if to inspect her work; but, more probably, to take note of the locality, so that she may always find her way home. This done she proceeds in quest of prey; and after awhile returns with a fly in her clutches, which she deposits in her nest, carefully closing up the entrance before she wings her way on a second expedition. In the interval she deposits an egg on the body of the paralyzed fly, which is to serve as food for the larva when hatched from the egg. Apparently the bombex makes a fresh nest for every egg; at least, we

nowhere read of any instance of two eggs, or larvæ, having been found in a single gallery.

With respect to the unerring certainty displayed by the bombex in returning to her own nest, she seems to perform a mental act something like our own when recognizing a locality. But her senses, as Mr. Bates remarks, must be much keener, and her mental operations more exact, than is the case with us; for Mr. Bates could not distinguish any landmark on the sandy surface capable of serving as a guide, and the forest-border was fully half a mile distant. The wasp's action, he adds, would be described as instinctive; yet it seems clear that the instinct is no mysterious, unintelligible agent, but in each individual a definite mental process, differing from the same in man only by its infallibility. The "mind" of the insect appears to be so constituted that the impression of external objects, or the want felt, causes it to act with a precision which seems to us like that of a machine constructed so as to act in a given way.

The mason-wasp is not less interesting than the bombex. A common species, the *Pelopœus fistularis*, collects the clay with which it builds its habitation

in little round pellets, which, after rolling into a convenient shape, it carries off in its mouth. The nest of this wasp is pouch-shaped, about two inches long, and attached to a branch, or some other projecting object. "One of these restless artificers," says our authority, "once began to build on the handle of a chest in the cabin of my canoe, when we were stationary at a place for several days. It was so intent on its work that it allowed me to inspect the movements of its mouth with a lens whilst it was laying on the mortar. Every fresh pellet was brought in with a triumphant song, which changed to a cheerful, busy hum when it alighted and began to work. The little ball of moist clay was laid on the edge of the cell, and then spread out around the circular rim by means of the lower lip, guided by the mandibles. The insect placed itself astride over the rim to work, and on finishing each addition to the structure took a turn round, patting the sides with its feet inside and out before flying off to gather a fresh pellet. It worked only in sunny weather; and the previous layer was sometimes not quite dry when the new coating was added. The whole structure takes about a week to complete."

Legions of ants swarm in the forest; and nowhere else can the naturalist find a fitter field for the study of their characteristics. Scores of ant-hills are found in every glade; often between three and four feet high, conically shaped, and furnished with two or more entrances wide enough to admit of the passage of a man's arm. The interior of these hills is ingeniously divided into cells and corridors; the exterior is as hard as masonry. They are usually composed of a stony kind of earth, which is frequently brought from a distance, grain by grain.

The traveller often finds himself a spectator of a desperate ant-battle; the combatants on one side being red, and on the other black. They advance in long columns from different directions, as if they had decided on their battle-field beforehand, and accepted from each other a challenge to deadly strife. The front ranks meet and grapple: a severe conflict takes place—many a diminutive hero bites the dust; but over the bodies of the fallen the contest is prolonged; fresh warriors press forward to the onset; and still incessantly over the increasing pile of dead pours on the apparently inexhaustible flood of survivors, the fight continuing, perhaps, for several days. The victors may be afterwards seen

carrying off in triumph the mangled remains of the defeated, with the larvæ and pupæ, plundered perhaps from some neighbouring ant-hills. These insect-soldiers belong to the *ecitons*, or foraging-ants.

Another genus of ants, the *saüba*, confines its depredations to vegetables, never making war on its own kind. The ravages committed by these saübas almost equal those of the locusts. An army will march to a fruit-tree; part will ascend, the others remaining below. The former immediately begin the work of devastation, clipping off the leaves in large pieces, which, as they fall, the ants below proceed to carry away to their rendezvous. It is surprising, as Mr. Edwards observes, how considerable a burden one of these tiny insects will bear; a burden as disproportionate to its size as an oak would be for a man. Before morning not a leaf is left upon the tree; and, what is worse, the owner of the garden or orchard may rest assured that, unless he discovers the retreat of the saübas, and exterminates them, every tree will be reduced to the nakedness of desolation.

There is no such water-system anywhere else in

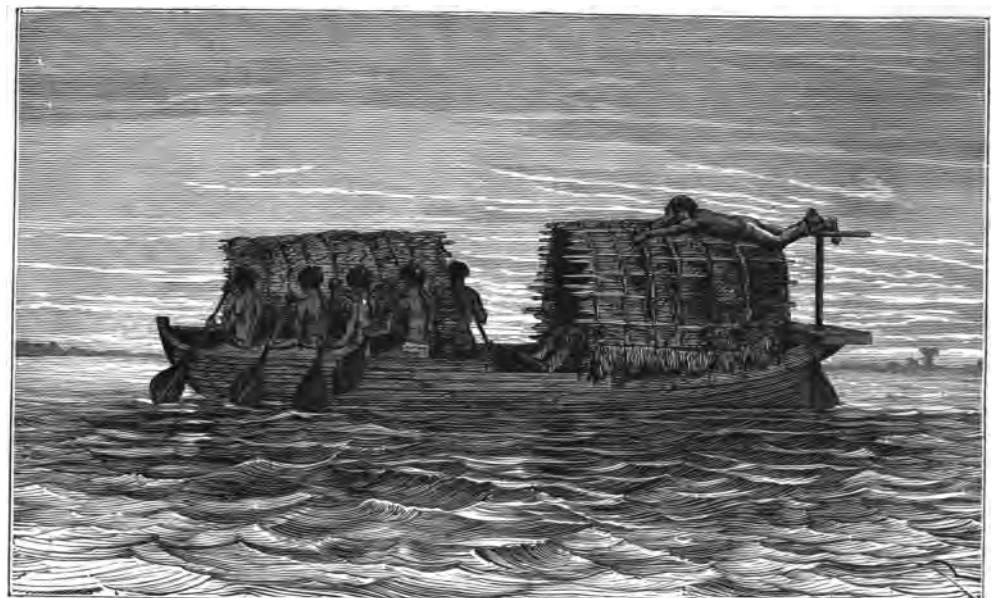


ANTS AFTER BATTLE.

the world as that of the Amazons. Its main tributaries are vast rivers; and *their* affluents are rivers of the second class. These are curiously connected with one another by a labyrinth of branches. Then, again, the forests and the campos are furrowed by numerous smaller rivers which resemble creeks, and, owing to the level character of the land, have no regular sources or downward currents. They assist in the drainage of the country, ebbing and flowing regularly with the tide. We are here speaking of the country round about Para and up to Obidos. The forest streams are called by the natives igarapés, or canoe-paths, and in their infinite number form the most characteristic feature of the country. As the land is densely covered with impenetrable forest-growth, the houses or villages are built by the water-side, and nearly all communication is by water. The traveller examines with curiosity the semi-aquatic life of the people. For short excursions, and for fishing in pools and still waters, they use a small boat called montaria. It is made of five planks: a broad one for the bottom, curved into the requisite shape by the action of heat; two narrow planks for the sides; and two small triangular pieces for the stem and stern. A rudder is

not needed, as the boatman steers and propels with his paddle. The montaria takes here the place of the horse, mule, or camel of other regions; but almost every family has also its igarité—a longer canoe, with two masts, rudder, and keel, and an arched awning, or stern-cabin, made of a framework of tough lianas, thatched with palm-leaves. In this craft, which they manage with much dexterity, they will cross rivers fifteen or twenty miles broad. The Amazonian Indians are as truly a maritime, or at least an aquatic, population, as the fisher-folk of the English coast, and are almost as daring.

And here our narrative must end; not for want of material,—inasmuch as a dozen volumes of this size would hardly suffice to describe all the physical characteristics and natural wonders of the Amazons valley,—but because we have exhausted our limits. Our object has been to sketch the course of the great river, from its source to its mouth; and to supply such notes of the scenery through which it passes, and of the animal and vegetable life that swarms in its basin, as may induce the reader to seek hereafter for fuller knowledge in the works of our naturalists and travellers. The preceding pages have been



BOAT IN USE ON THE UPPER AMAZON.

based upon the particulars recorded by Herndon, Smyth, Wallace, Agassiz, Edwards, Bates; and to these and similar authorities the reader may turn, in the assurance of gaining a vast amount of valuable and entertaining information.







